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A NON-NARCOTIC REMEDY FOR RELIEF

SPASTIC COLITIS

The effectiveness of Syntropan 'Roche' in the treatment of spastic colitis has been demonstrated by Weston (*Rev. Gastroenterol.*, 1942, 9:285). In a series of patients, some of whom had had symptomatic distress for as long as seven years, many experienced complete relief of symptoms following Syntropan therapy. The action of Syntropan 'Roche,' the non-narcotic antispasmodic, has been found superior to that of belladonna and its derivatives in the treatment of disorders due to smooth muscle spasm. Most important is the fact that Syntropan affords more direct antispasmodic effect with less likelihood of mouth dryness, mydriasis, or tachycardia.

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EDITORIALS

Nicholas Copernicus
1473-1543

POLISH astronomer, as a youth a student of mathematics, dabbler in painting; never ordained, he fulfilled clerical duties; a physician to the pious, the poor and the powerful, he was sufficiently worldly to proffer a scheme for reform of currency and minting and secured a doctorate in canon law. Medicine — law — priesthood — mathematics — finance — all overshadowed by the astronomical theory developed during the closing two decades of his busy life. Four hundred years ago, the treatise entitled *De Revolutionibus Orbium Coelestium* reached the death bed of its author. Curiously, 1943 also is the four hundredth year since publication of *De Fabrica Humani Corporis* of Andreas Vesalius (1514-1564). H. G.

Richard Morton
1637-1698

INHERITING not much more than the teachings of Celsus with respect to tubercles and consumption, Morton rationalized the subject of tuberculosis to an amazing degree, considering the utter confusion that reigned in this field in his day. Thus he understood the nature of the pulmonary tubercle and correlated the clinical picture with the early lesion, with the phase of ulceration, and with the "putrid" stage. To Celsus and his followers a tubercle was any little tumor anywhere in the body—whether in the lungs or elsewhere—with little but the vaguest connotations in their minds as to constitutional effects of a specific sort. Morton elucidated the relation of pulmonary tuberculosis to the characteristic ravages of the disease, stressed hereditary predisposition, identified the stigmata (habitus), and insisted upon communi-



cability. He also believed in the possibility of prevention and early curability, emphasizing the role of bad hygiene, poor pulmonary ventilation instead of "open, fresh, kindly air," and infection.

But perhaps most notable in his *Phthisiologia* is the doubt expressed concerning hemoptysis as a cause rather than an effect of pulmonary tuberculosis. Strange as it may seem today the prevailing view affirmed hemoptysis to be a causative factor. Morton dared to doubt this.

We are not unmindful of Flick's opinion that Morton clung to the old idea that hemoptysis was a cause of consumption. The question hangs upon Morton's own words—and what are they? "That common saying among physicians that purulent matter follows blood seems to have had its original from hence because an aposteme [abscess] of the lungs or a pulmonary consumption is wont to follow a spitting of blood sooner and oftener than any other distemper." But, Morton goes on to imply in effect that he can make nothing of the explanations advanced as to how hemoptysis causes pulmonary tuberculosis, whether "from the crassis [constitution] of the blood being spoiled by too great a loss of it or from a plentiful flux of humors from the whole habit of the body into the tender lungs where they have a free passage; or from the putrefaction of the clotted blood, that remains in the lungs after the spitting of the blood; or lastly from some ulcer following upon the erosion of the vessels." We submit that the element of doubt enters into Morton's disquisition.

Oddly enough, even after Laënnec, Louis and Traube had quite completely clarified the pathology and clinical phenomena of pulmonary tuberculosis, Graves and Niemeyer seem to have been inclined to revert to the old fallacy with respect to hemoptysis as cause rather than effect.

Also to be added to Morton's credit is his doctrine that everyone in early life has at least "a touch of a Consumption," his distinction between the "inflammatory" fever of early infection and the septic fever with chills and sweating of the late pathology, his correlation of scrofulous adenitis with pulmonary tuberculosis, and his clear recognition of the spes phthisica, as shown by the following passage: "... it often happens that these kind of Consumptive People, even when they are looked upon as deplorable by others, flatter themselves extremely with the hopes of their Recovery; so that the same Persons that at Night used to think themselves irrecoverable, and tell those about them they should certainly dye, yet the next Morning they always pluck up their Courage, and in vain entertain the hopes of living long."

No Mean Physiologist

PROFESSOR E. V. Cowdry of the Washington University School of Medicine, the well known writer on geriatrics, quotes Ralph Waldo Emerson illuminatingly (*Scientific Monthly*, April, 1943) on why some factors in aging, if not greatly overshadowed by disease, are assets. Incidentally, Dr. Cowdry makes the point that the passage in question, written perhaps a century ago, shows Emerson to have been no mean physiologist, judged by modern standards rather than by those with which he was contemporary. The quotation follows:

At fifty years, 'tis said, afflicted citizens lose their sick-headaches . . . 'tis certain that graver headaches and heartaches are lulled once for all, as we come up with certain goals of time. The passions have answered their purpose; that slight but dread overweight, with

which, in each instance, Nature secures the execution of her aim, drops off. To keep man on the planet, she impresses the terror of death. To perfect the commissariat, she implants in each a certain capacity to get the supply, and a little oversupply, of what he wants. To secure the existence of the race, she reinforces the sexual instinct, at the risk of disorder, grief and pain. To secure strength, she imparts cruel hunger and thirst, which so easily overdo their office, and invite disease. But these temporary stays and shifts for the protection of the young animal are shed as fast as they can be replaced by the nobler resources."

The Gaudy Jitters of Defeated German War Lords

THE following passage is from Grant and Temperley's *Europe in the Nineteenth and Twentieth Centuries*, 1789-1932:

On September 28th Ludendorff was sitting in his headquarters at the Hôtel Britannique at Spa. The news was everywhere bad. The Americans had straightened out the St. Mihiel salient, and were attacking with the French in the Argonne. The Belgians were attacking in their own territory. The British had just broken the "Siegfried line." The German prisoners numbered a quarter of a million in the Allied offensives of three months. They were speaking, too, of internal revolution in Germany. Yet Ludendorff was still unconvinced by the news from the home front and from the West. What finished him was the news which reached him from the East. As he spoke of the Bulgarian disaster before two officers, he gradually got worked to a frenzy and fell down in a fit. 'Foam appeared on his lips and in a slow, gliding motion, the heavy body of a giant fallen for Germany fell athwart the room.' (*Rheinische Westfälische Zeitung*, September 25, 1928, on the evidence of an eye-witness). When he recovered he gave orders to conceal the fact of his seizure and to sue for peace. His decision was accepted on the 29th. In the weeks that followed he recovered his nerve and made attempts to stop the peace-making that he had himself begun. But the forces once set in motion could not be arrested, and peace once asked for came certainly and soon. The final impulse to it came, as has been seen, from the East.

One wonders what form der Fuehrer's final seizure will take.



Protein Reserves

With the world short of critical foods more people are beginning to comprehend the importance of approximately 50 billion pounds of separated milk used for animal feed or lost at the farm.

This vast quantity of non-fat milk solids represents a tremendous reservoir of essential food, including protein of the highest nutritional value—enough to provide

the average yearly protein consumption of well over 25 million people.

"The Nation's Protein Supply," a report of the Food and Nutrition Board, National Research Council, focuses attention on this situation. The report, recently issued in reprint form, was a study by the Committee on Milk, Meat and Legumes of which Dr. W. C. Rose of the University of Illinois is Chairman.

STILBESTROL IN OBSTETRICS

ARCHIBALD P. HUDGINS, M.D.

Charleston, West Virginia

WHEN a drug has become definitely associated with one phase of medicine it may be overlooked that there are other uses. So it is with stilbestrol.

The outstanding use considered for stilbestrol is for the relief of menopausal symptoms and the effect upon the vagina in gonorrheal infections or in certain senile changes.

There are several important uses in obstetrics for stilbestrol. They may be listed as follows:

1. A test for pregnancy.
2. Treatment of nausea of pregnancy.
3. Treatment of threatened or repeated abortion or miscarriage.
4. Treatment of retroverted pregnant uterus (to prevent abortion).
5. Test for ectopic pregnancy.
6. When surgery is necessary during pregnancy (to prevent abortion).
7. Postpartum bleeding—after term pregnancy or abortion.
8. To suppress lactation.
9. Treatment of toxemia in pregnancy.
10. The treatment of the extra-uterine retained placenta.

As A Test For Pregnancy

WHEN the presumptive signs and symptoms of pregnancy are present, ten to twenty-five mg. of stilbestrol are given by mouth and if nausea does not follow within six hours the possibility is that the woman is pregnant.

Another test for pregnancy or pseudo-pregnancy (with amenorrhea) is to give stilbestrol mg. 1 every night till bleeding starts or until the diagnosis can otherwise be established. If there is pregnancy no bleeding will occur and the pregnancy will not be disturbed. If there is amenorrhea from other causes bleeding should occur in 14 to 21 days.

The stilbestrol used in this work was graciously supplied by Eli Lilly and Company. In the form of 25 mg. capsules administration was facilitated. The kindness of the donor is gratefully acknowledged.

MEDICAL TIMES, MAY, 1943

Treatment of Nausea of Pregnancy

STILBESTROL mg. 5 every night (9 P.M.) increasing 5 mg. each night till nausea stops. The nausea is thought to be due to a reaction to the rising or changing estrogenic content in the blood. If this can be established quickly and maintained the patient will be relieved of a long siege of discomfort.

Treatment of Threatened or Repeated Abortion or Miscarriage

THREATENED or repeated abortion or miscarriage is very distressing, wasteful, and at times dangerous. Its frequency is amazing. The results of a few investigations are tabulated to indicate how often it is estimated to occur. The following are per hundred pregnancies unless otherwise noted.

Stumpf	28%
Meyer	21.8%
Shultz	22%
Heller	21.7%
Frans	16.8%
Whitehouse	17.2%
Malen	16%
Williams	6%
Malins	19.3% pregnancies in 2,000 cases
Toussig	1 to every 2.23 pregnancies (43.4%)
Litzenberg	20%
Marchorloff	10%
Kayssner	17.8%
Ahlfeld	20%
Average	19.3%

Incidence of abortions by months shows that approximately three-fourths of abortions occur during the second and third months. This is usually divided up:

1st. month	0.6%
2nd. month	26.6%
3rd. month	41.9%
4th. month	16.9%
5th. month	7.8%
6th. month	3.2%

The usual causes for this inability to carry the pregnancy may be listed:

Faultily impregnated ovum or abnormalities of fetus (which are inconsistent with life).

Placental abnormalities

Low implantations

Imperfect implantations

Premature separation

Acute infections—disease or poisoning

Abnormalities in genital tract
Imperfectly developed uterus
Retroversion of the uterus
Diseases of the decidua

Trauma
Emotional or psychic shock
Endocrine factors
Syphilis

By detailed study no cause could be determined in from 20 per cent (Abernethy) to 68.6 per cent (Vemucoli) of the cases studied in two large groups.

As a starting point to classify the causes, let the factors be subdivided into those in the ovum (fetus or placenta) and those in the mother (endometrium, decidua).

Faulty Impregnated Ovum

THE various factors affecting the sperm and ovum must be considered: general poor health, venereal disease, toxins (chemical or bacterial), inflammation of genital tract, endocrine influences, dietary deficiencies, etc.

It is entirely possible that improper environment and nutrition may cause a certain number of monsters. An outstanding example of this would be the high percentage of abnormal fetuses found in ectopic (abdominal) pregnancies and in inflammatory conditions of the endometrium. The cause of ectopic pregnancy is most frequently placed at the door of abnormal genital pathways, not defective ovum or sperm.

Karnaky has pointed out that attempts to prevent miscarriage when the fetus is grossly deformed are usually futile even by the most vigorous methods. However, many pregnancies, when treated early, are saved and the possibility of providing abundantly adequate nutritional and other environmental factors is important. It is logical that early help in a minor deficiency may prevent the growth of a more serious developmental change. Mall and his coworkers and Litzenberg and Hart have investigated this phase of abnormality in the fetus.

Faulty Maternal Environment

THE "nest" which is to offer food and protection to the growing fertilized ovum is under a continuous series of variable factors as to food, endocrine changes, and emotional factors in the mother. Little wonder there are dele-

rious factors incompatible with ideal growth of the ovum!

Endocrine

THE basic principles of the endocrine cycle may thus be outlined: Anterior lobe of the pituitary produces a stimulating hormone effecting a ripening of the ovarian follicle, thus producing folliculin (oestrin, theelin) and the corpus luteum which secretes lutein (progesterin). These in turn control the endometrial proliferative and secretory changes found within the uterus. The corpus luteum hormone has long been considered the protector of the early impregnated ovum—perhaps for three months. The endometrium is thus under the influence of many factors which change month by month. There is little hope for absolute consistency and ideal regularity in the final end-product.

It is entirely possible that the various other causes are related to the endocrine factor by their effect on the glands (pituitary, thyroid, ovaries). Among these can be mentioned infectious diseases, focal infections, toxins, dietary deficiencies, psychic shock. That is, these causes—if causes they be—act through the endocrine system as the *modus operandi*.

Abnormalities in the Female Genital Tract

MYOMATA of the uterus: Litzenberg says that "when we consider the large number of pregnant women who have multiple fibroids and the comparatively small number of them who abort, we must realize that myomata are not a common primary etiologic factor. Pierson studied 191 cases of multiple myomata complicating pregnancy, of which 24.1 per cent either aborted or had premature labor. Vemucoli found that one-third of the women with all types of pelvic tumors aborted. The reason for the abortion is not so much the mechanical interference of the tumors, but the death of the fetus, due to the circulatory disturbances including a hyperplastic endometrium and decidua which interfere with proper nutrition."

Retrodisplacement

THE retroverted pregnant uterus will be discussed under a separate heading because of certain factors to be considered in the treatment.

Treatment of Threatened or Habitual Abortion

Prophylaxis: This phase is difficult until the underlying cause is understood. However, making a thorough search for possible pathology which can be corrected or anticipated and trouble forestalled is a definite step. In "suspected cases" stilbestrol mg. 5 or 10 should be given daily. Keeping the patient at the peak of physical well-being is the challenge placed before the obstetrician. This is done by following the fundamentals of hygiene: adequate rest, adequate diet, wholesome surroundings.

Threatened abortion: Immediate rest, elevation of the feet, and sedation are imperative; prolonged rest and avoiding drastic bowel irritation is the routine treatment advised.

Stilbestrol has something definite to offer here. Karnaky has outlined the treatment found best: "25 mg. of stilbestrol every 15 to 30 minutes until cramping or bleeding stops. Then 10 mg. every hour for six doses followed by 5 mg. every hour for six doses. Twenty-five mg. should be repeated if bleeding or cramping re-occurs. 10 mg. should be continued daily. The dosage may be increased to 100 mg. a day if required. Thyroid to tolerance is also advised to control labor pains in a threatened premature labor until it can be carried along to the desired time for delivery."

The effect of the stilbestrol is apparently to stimulate endometrial proliferation when the fetus is present and thus help placental stabilization. This improves nutrition for the fetus. Perhaps some "rough spots" are given help by this added endometrial stimulation. Areas with faulty endometrial base as would be found over a myomata or in areas where pressure may be exerted, as in the retroverted pregnant uterus, are given an added boost and are helped through a difficult, uncertain time. Karnaky reports that the uterine contractions are decreased by stilbestrol also. Stilbestrol thus acts as a kindly, protecting hand in tiding the fertilized ovum through a precarious situation.

There seems to be a mild cyclic estrogenic variation even during pregnancy. The "time for the menses" frequently is the time when miscarriage is most liable to occur—additional precautions should be

taken during this time.

White and Huntington have found thyroid alone to be helpful in 90 per cent of the cases of threatened miscarriage when given early and over a prolonged period. Stilbestrol acts more quickly and is given as an emergency measure as well as by way of prophylaxis.

The following case may be cited:

Case Report

A twenty-year-old white female reported to the office complaining of four previous miscarriages varying from two to four gestational months. She had tried to follow through the advice previously given her by her physician. Her history was, otherwise, essentially negative except for the fact that the menstrual cycle was not regular, varying from three to five weeks.

Physical examination revealed slight generalized obesity, the Wassermann was negative, BMR plus ten. She was put on a diet and small doses of thyroid. Pregnancy occurred again with the same unfortunate symptoms of early cramping and slight spotting. Thyroid was increased and large doses of stilbestrol (50 to 75 mg. a day) were given. This patient reported that her symptoms during this pregnancy were similar to those of her previous pregnancies which terminated early. For this reason she felt quite apprehensive lest this pregnancy should also end in disappointment. Under stilbestrol and thyroid, however, the pregnancy did go through to term and a normal child was delivered. Both mother and baby were in good condition and their subsequent health has been excellent.

Treatment of the Retroverted Pregnant Uterus

RETROVERSIONS and retroflexions are reported (Williams) to occur in 25 per cent of all women, being the most common form of uterine displacement. The pregnant retroverted uterus normally spontaneously rises above the promontory of the sacrum and growth continues uneventfully. Abortion occurs if the space for growth is not available. The other possible terminations of the retroverted pregnant uterus are partial restitution and incarceration.

Abortions may be due less to abnormal position than to the accompanying lesions of the uterine lining membrane resulting from circulatory changes incident to such position. In the rare cases of incarceration, however, the accident may be attributed to pressure exerted by the surrounding parts upon the abnormally placed organ.

Retrodisplacements are considered by Huntington to play only a small part in the etiology of abortions except perhaps in the case of incarceration below the promontory of the sacrum. Here again the effect of circulation and the changes in the decidua are factors.

Treatment

THE first responsibility is to explain to the patient that there is an increased hazard for the pregnancy when the pregnant uterus is retroverted.

Rest, avoidance of trauma (chiefly coitus), at times the supporting pessary, knee-chest position, and the recumbent position on the abdomen daily constitute the routine advice. By the third or fourth month restoration to the anterior position is completed if the pregnancy is retained till that time.

Knowing that trouble may be expected in some cases when the uterus is in the posterior position, prophylaxis is more definitely indicated. This consists of 5 to 10 mg. of stilbestrol daily until the uterus has risen above the promontory of the sacrum.

A large number of cases must be followed through to be of conclusive evidence here. In a small group the author's results are very encouraging.

Test for Ectopic Pregnancy

ONE of the very unusual and interesting uses of stilbestrol is when it is given during the early stage of pregnancy when bleeding is present, as a test for ectopic pregnancy. Given the positive diagnosis of pregnancy with bleeding, stilbestrol is administered in adequate doses and if bleeding does not stop promptly one is justified in making a diagnosis of ectopic pregnancy—if the physical findings fit in with this condition. The author has had two interesting cases along this line which will be summarized briefly.

A twenty-six-year-old, white female reported at the office complaining of irregular vaginal bleeding for about six weeks varying from profuse flow to dribbling. Previous menstrual history had been entirely negative although the uterus was in the third degree posterior position, limited as to movement, very painful, and apparently normal in size. No definite pelvic masses could be made out although there was some generalized pelvic tenderness. The metabolic rate was plus 22, the hemoglobin 70 per cent, leukocytes ten thousand, and the urine negative.

This case was thought to have a functional uterine bleeding and was put on stilbestrol in large doses—at first 50 mg. then 25 mg. every hour in an attempt to stop the bleeding. The flow did not decrease. On a subsequent examination the patient went into a mild shock with pallor and weak and thready pulse. The patient was promptly hospitalized. A Friedman test was made which was positive. With this picture of a pelvic mass, shock, positive Friedman test, and bleeding which was not controlled by stilbestrol, the diagnosis of ectopic pregnancy was made. Surgery confirmed this diagnosis.

The second case was that of a colored girl 23 years of age who had had an irregular bleeding over a period of about six weeks with pain in the

lower right quadrant. Her menstrual history, otherwise, had been entirely negative. No definite history of a missed period was given. She did, however, give the history that there had been a severe pain in the lower right quadrant about one month previously. No positive physical findings could be made out on this patient. The uterus was in the anterior position, normal size, movable. There was some vague tenderness on the right but no definite masses could be palpated. She was given 50 mg. of stilbestrol, repeating this with 25 mg. every thirty minutes, in an effort to stop the bleeding. The flow was apparently slightly decreased but did not completely stop. The diagnosis of ectopic pregnancy was not made on this case but due to her continued pain and bleeding and right adnexal tenderness surgery was advised and an ectopic pregnancy was found.

Surgery During Pregnancy

"CONSERVATION of life must dictate every decision for surgery during pregnancy." Whenever possible, operations should be postponed until after delivery. When an emergency is faced and the abdomen must be entered during pregnancy any additional safety factors are welcomed. Stilbestrol mg. 25 to 100 is given daily preceding the operation and following for several weeks. Observing the instructions for threatened abortion should be helpful.

Treatment of Postpartum Bleeding

THE routine treatment in such cases is usually pituitrin or ergot and manual manipulation of the uterus if expedient, reserving surgical procedures such as invasion of the uterus for packing and removal of placental tissue when other methods fail.

Stilbestrol is used in these cases of bleeding by giving 25 mg. every 15 to 30 minutes until bleeding is controlled, then 10 mg. every hour for 6 hours, and then 5 mg. every hour for 6 hours. After the bleeding has been controlled daily doses of stilbestrol should be given—5 to 25 mg., preferably in the evening. This method of treatment can be started immediately without regard for the presence or absence of potential infection. It may be used along with other drugs such as ergot or sulfathiazole when indicated. This method of treatment permits one to keep away from this area at this dangerous time.

What apparently happens in these cases is that the stilbestrol in large doses has a very unusual effect on the endometrium after the fetus has been expelled. It apparently causes trophic changes and shrinking of the endometrium and bits of placental tissue are expelled. (This is

quite different from its effect when the fetus is present.) If this method is carried through, surgery may be averted in the majority of cases of postpartum bleeding.

Suppression of Lactation

STILBESTROL mg. 5 three times a day or 10 mg. at bedtime for three days has been found effective in relieving engorged breasts and suppressing lactation.

Treatment of Toxemia in Pregnancy

THE toxemias of pregnancy are being more carefully subdivided and classified. A rising blood pressure or albuminuria may mean true essential vascular disease or a nephritis. A careful history or previous physical findings may be helpful in making this differential diagnosis.

Stilbestrol mg. 25 four times a day has been recommended in the treatment of true toxemias of pregnancy.

The writer's results in these cases have not been conclusive.

Treatment of Extra-Uterine Placenta

ONE of the uses of stilbestrol which has not previously appeared in literature is in the treatment of the extra-uterine placenta. This condition is encountered when one has had a term or near term abdominal pregnancy in which the fetus has been removed and it is thought to be not advisable to remove the placenta at the time of the first operation. The placenta is left in situ when a large amount of bleeding would be expected to accompany an attempt to remove it.

Rapid, complete separation of the placenta and the reduction of hemorrhage is accomplished by the administration of large doses of stilbestrol. While these cases are rare the procedure may be a life-saving one and should be borne in mind.

Case Report

A near term abdominal pregnancy was delivered by laparotomy in September, 1942. The placenta was implanted high and was left in. Symptoms of an acute abdomen with obstructive signs and symptoms followed. The symptoms and signs subsided under the use of stilbestrol and the placenta was completely separated and encapsulated, permitting easy removal about three months after the first laparotomy and about two months after the administration of stilbestrol mg. 25 to 50 daily.

This is the first report of the use of stilbestrol for this purpose and the drug should receive further attention in this condition.

Conclusions

STILBESTROL is useful in the following obstetrical conditions:

1. As a test for pregnancy. a. Mg. 10 to 25—watching for nausea. b. Mg. 1. daily for 14 to 21 days to overcome amenorrhea.
2. Treatment of nausea of pregnancy. Mg. 5 at bed time—increasing dose by mg. 5 daily.
3. Treatment of threatened or repeated abortion or miscarriage. Mg. 25 to 100 daily.
4. Treatment of retroverted pregnant uterus (to prevent abortion). Mg. 10 to 25 daily until after restitution to anterior position.
5. Test for ectopic pregnancy. Suspected if 100 mg. daily does not check bleeding of early pregnancy.
6. When surgery is necessary during pregnancy. Mg. 25 to 100 before and following operation.
7. Treatment of postpartum bleeding. Mg. 100 every 30 minutes until bleeding stops (to be used with other medications also).
8. To suppress lactation. Mg. 5 to 10 for three days.
9. Treatment of toxemia in pregnancy. (?) Mg. 100 daily.
10. Treatment of retained extra-uterine placenta. Mg. 50 daily after delivery of abdominal fetus (facilitates separation of placenta).

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THE VALUE OF X-RAY IN PREGNANCY

AUSTIN B. JOHNSON, M.D., F.A.C.S.

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MANY methods of x-ray diagnosis in pregnancy have been developed. I believe that Dr. William E. Caldwell, of Sloane Hospital for Women, probably gave more impetus to these studies than any other individual. I do not know of any x-ray technique which has been developed that gives all the answers. The Ball technique has been used in the pictures which will be presented. This, as before stated, is not 100 per cent perfect in interpreting films. However, an obstetrician who practices without the aid of x-ray films does not give the patient all

that science affords.

This question always arises: What patients should be x-rayed? All primiparous patients in whom the head does not engage one week before the due date should be x-rayed. All patients who present a problem before or during labor should have the benefit of an x-ray. I shall present pictures which show the value of the x-ray in cases of disproportion, breech presentation, placenta previa, and dead and abnormal fetuses.

Case 1

THE first film is that of a primipara, 31 years old, who is three weeks overdue. The doctor in charge of this case felt that a section was indicated because of a large baby and non-engagement of the head. The x-ray report is as follows:

Pelvicephalometry shows a single full

Read before the Scientific Session of the Associated Physicians of Long Island, held at the South Nassau Communities Hospital, September 22nd, 1942.

term fetus, cephalic presentation, occiput in the left anterior position. The head is not engaged; its circumference measuring 35 centimeters and its volume 725 milliliters. The pelvis is gynecoid with moderately converging side walls. The ischial spines are fairly prominent and the volume capacity is 525 milliliters, and the sacrosciatic notch is wide and shallow. The true conjugate measures 12 centimeters, and its volume capacity is 900 milliliters. Summary: Although the head measures 200 milliliters more than the capacity of the bi-ischial diameter, this amount can be compensated for by the molding of the head which occurs during labor, and by the compensatory space in the posterior portion of the pelvis at this level. Diagnosis: There is no true fetopelvic disproportion.

This patient went into labor, and after twenty-two hours the cervix was fully dilated, the caput could be seen, and the baby was in the occiput posterior position. A manual rotation was done, and baby delivered by forceps. The baby weighed 9 lbs. 14 ozs.

Case 2

A PRIMIPARA, 21 years old, at term. X-ray report as follows: Examination shows a good size fetus with the head in the pelvis, its occiput presenting but not engaged; the fetal spine is to maternal left. The pelvis shows converging side walls with a markedly straight sacrum. The volume capacity of the fetal head is 720 milliliters. The volume capacity of the true conjugate is 800, while the bi-ischial is only 525, showing a disproportion at the outlet. Because of a disproportion of 195 milliliters and a markedly straight sacrum, a cesarean was performed. The baby weighed 7 lbs. 4½ ozs. The difference in these first two cases is the marked flattening of the sacrum, and it has been found in previous cases with this type of sacrum that the full allowance for molding can not be considered.

Case 3

A 26-YEAR-OLD primipara with an external conjugate which measures 18½ centimeters, and all other pelvic measurements in proportion. Rectal examination, one week before term, showed the head to be high and movable. X-ray report: Vertex LOA, pelvis generally

small. Volume capacity of the head 470, true conjugate capacity 530, spines 410. This patients had 16 hours of labor, at which time the cervix was three fingers dilated, and the head still movable at the inlet. A low flap cesarean was performed, and the baby weighed 6 lbs. 7 ozs. According to the x-ray, this head should have passed the inlet with 16 hours of labor. I do not know why this did not occur, and this is an instance in which x-ray can not be relied upon. However, I believe that the majority of obstetricians would agree that this patient should have a section.

Case 4

A 23-YEAR-OLD primipara with external measurements within the normal limits. X-ray shows a fairly large fetus with the head in the pelvis in almost transverse position. Head capacity 630; true conjugate 900; bi-ischial 600. The sacrum is flat in this case. Because of these measurements, this patient was allowed to have a sixty hour labor. The head was arrested at the spines in the occiput posterior position. Several attempts were made to deliver this baby by forceps. The head was finally rotated manually into the anterior position and forceps applied. Delivery was not accomplished. The fetal heart disappeared and a craniotomy was done. The baby weighed 7 lbs. 13 ozs. I believe that the flat sacrum, the occiput posterior position of the baby and cervical dystocia accounted for the difficulty.

Case 5

IS THAT of a breech in a 39-year-old primipara. X-ray shows head capacity 575; true conjugate 760; bi-ischial 525. The sacrum has a straight anterior surface resulting in a diminished compensatory space in the posterior pelvis. Because of a flat sacrum, a slight disproportion of the spines, a lack of molding of the head in a breech presentation, and chiefly because of the age and desire of the patient to have a living baby, a section was performed. The baby weighed 8 lbs. 6 ozs.; and the actual circumference of the head was 36.4 centimeters as compared to x-ray measurement of 32.5 centimeters.

Case 6

A 38-YEAR-OLD primipara who, two weeks before term, had bright red

bleeding. Vaginal examination in the delivery room revealed no evidence of placenta previa. The patient was x-rayed and showed the following: The fetal skull is displaced forward and upward and above the symphysis. There is a dense shadow just above and posterior to the fetus. Head measures 575; true conjugate 900; bi-ischial 600. The position of the head and the dense shadow suggests a tumor of the uterus or a low implantation of a large placenta. A cesarean section was done, no tumor found, but the placenta was found in the lower uterine segment of the posterior wall.

Case 7

A MULTIPARA who is overdue. Clinical examination reveals a head which is very high and floating. Because of this finding, a rectal examination was made, and a soft boggy mass was felt between the head and the examining finger. X-ray shows the following: After the injection of sodium iodide into the bladder there is a widening of the spaces normally present between the fetal head and the roof of the bladder. On the right side the width of the space amounts to 2 centimeters, and gradually decreases until it reaches about $\frac{1}{2}$ centimeter on the left side. The space appears to be occupied by a semilunar soft tissue shadow which strongly suggests placenta. Since the normal space is approximately 1 centimeter, the increase in width also suggests evidence of placenta previa. Because of these findings, even though there was no evidence of vaginal bleeding, a section was performed. The placenta was found in the upper part of the uterus. I show this plate because I am guilty of doing this section without previously performing a vaginal examination, under proper precautions, to confirm the diagnosis. A consultant should not allow himself to be maneuvered into such a position.

Case 8

SHOWS a picture which would have obviated the difficulty in the previous case. In all cases of suspected placenta previa, further pictures should be taken in order to locate the placenta in the upper part of the uterus. This film shows a placenta which is readily seen in the fundus of the uterus.

Case 9

THIS is a multipara who had 50 hours of labor. I saw the patient after 24 hours; the head was high, did not fit well into the pelvis, and the cervix was about $2\frac{1}{2}$ fingers dilated. I advised further observation. Twenty-four hours later, the doctor in charge of the case said that the conditions were the same and the patient exhausted, and he believed that the breech was presenting. Finally we stumbled on to the idea of doing an x-ray, and a large hydrocephalic fetus was visualized. The head was punctured, and delivery was spontaneous in about five hours.

Case 10

THE next picture shows an anencephalic monster in a patient two weeks overdue. Labor was induced, and after a long labor delivery was spontaneous.

Case 11

THIS film shows a dead fetus with marked overlapping of the skull bones. This patient went into labor and delivered spontaneously.

Conclusions

THE first two cases presented demonstrate the great value of x-ray. In the first instance it disproved the necessity for cesarean, and in the second one the need for section was indicated. Fortunately the majority of obstetrical problems fall into this group.

The third and fourth cases are difficult ones which tax, to the utmost, the judgment of the obstetrician and the x-ray physician. According to the x-ray, both of these patients should have delivered from below. Neither x-ray nor clinical judgment was adequate in the fourth case presented. It is hoped that by further x-ray studies, or some new method, the number of patients falling into this category can be further diminished.

In breech presentation the size of the baby's head can not be measured accurately.

The combined technique of filling the bladder with sodium iodide, and the search for the placenta by the soft tissue technique, should materially aid in the diagnosis of placenta previa.

The value of x-ray in abnormal and dead fetuses is obvious.

1502 MOTT AVENUE.

USE AND ABUSE OF CASTRATION IN CARCINOMA OF THE PROSTATE

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Carcinoma of the prostate has been one of the most dreaded of the uropathies. Our inability to make a sufficiently early diagnosis has lessened the number of cures. Many times we have attempted radical surgery on these patients, with a favorable prognosis, only to have a general carcinomatosis ensue within a period of months. Castration upon patients suffering from carcinoma of the prostate has given startling symptomatic relief. It may be interesting to learn that castration in prostatic disease is about fifty years old. As early as 1893, Bier described three cases of complete urinary retention due to enlargement of the prostate. Bilateral orchidectomies were performed on these patients with intermittent catheterization. They eventually regained the function of their bladders. This method seemed so safe that many other surgeons attempted it and a considerable literature developed.

It is to Huggins of Chicago (1940 and 1941) that we owe our debt for the scientific and clinical application of castration for carcinoma of the prostate. In the course of his researches he found a high percentage of serum acid phosphatase produced by the prostate gland. In studying variations of this secretion he learned of the tremendous increase produced in carcinoma of the prostate. Combining this information with x-ray findings in advanced cases he correlated his acid phosphatase studies with the development of bone metastasis. The disappearance of pain from metastasis and in some instances actual x-ray disappearance of bony metastasis has been dramatic. Approximately 80 per cent of the patients treated obtained marked symptomatic relief. In addition to experiencing relief of their symptoms, these patients gain

weight, feel stronger and have a better appetite. Their blood picture improves. The duration of this relief can be determined only by further observations. It is a step in the right direction. Further research studies by the scientific group will continue to offer advancement in treating carcinoma of the prostate.

SOME patients are unwilling to submit to castration. Others whose obstruction has been relieved by transurethral resection but who are suffering from bony metastasis are glad to submit to the operation. I believe that it has been easier for us to convince patients of the wisdom of the operation since using the less mutilating procedure of testicular enucleation. This preserves the capsule and tunica and gives the illusion of the presence of the testes in the scrotum. Examination of these patients three or four months after castration reveals two small bodies in the scrotum. With a little imagination these can be considered fibrotic testes, which in some instances retain a certain orchic tenderness.

The procedure we are following at the present time in carcinoma of the prostate is first to make a diagnosis on clinical palpation, second check the pelvis and lumbar spine for bony metastasis and third determine the serum acid phosphatase. If the patient be obstructed, his prostate only discretely involved by a small nodule, and the x-ray and serum acid phosphatase normal, we still prefer radical perineal prostatectomy. Should there be an elevation of the serum acid phosphatase above 6 King-Armstrong units we attempt no major surgery. We have been very fortunate in our castrations with patients in complete urinary retention from carcinoma of the prostate. Several days of indwelling catheter drainage was instituted and their general condition observed, following which a bilateral subcapsular orchidectomy was performed. The catheters were removed after five days and the patients were able to void. They voided with a forceful stream and carried no residual urine. This, however, is not true in all

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cases. Some patients may require a resection of the prostate before emptying their bladders properly. In our earlier cases we combined castration and transurethral resection with equally satisfactory results.

We have been unable to do acid phosphatase determinations on all of our patients because of the difficulty in small hospital laboratories involved in the quantitative technique. In all of our hospitals but one this method is carried out consistently and we hope to have facilities in that hospital before the first of the year. In the beginning, however, our judgment was based entirely on the clinical findings of the prostate with or without x-ray metastasis.

Our experience with the method is given in the brief summaries of a few case reports selected at random.

Case 1

Patient C. B., male, aged 51, was first seen in the office in May, 1942, complaining of frequency, urgency, slow stream and pain in the back. He had three ounces of clear residual urine. Prostate per rectum was Grade III in size, fixed, stony hard and nodular. A diagnosis of carcinoma of the prostate was made. Patient was admitted to the hospital and placed on catheter drainage on June 25, 1942, following which bilateral castration was performed. Two days later catheter was removed and patient was able to void freely with no complaints. He was seen in the office July 6, 1942 at which time he had no urinary symptoms and no pain in the back. On August 17, 1942 he stated that sexual relationship was as before, about once a week. He had two nodules in the scrotum approximately the size of the testicles before operation. Hot flushes and sweats were relieved by oral stilbestrol. The microscopic report was normal testicle.

Case 2

Patient C. B., male, aged 69, was first seen for symptoms of prostatism in November, 1941. A diagnosis of carcinoma of the prostate was made and later confirmed microscopically. That same month he had a transurethral resection of his prostate gland. He made an uneventful recovery and was discharged one week later. This patient was comfortable until April, 1942, at which time he complained of backache. It became progressively worse and two months later it was intolerable. Serum acid phosphatase was 8.2 K. A. units. On June 13, 1942 a bilateral castration was done and patient was discharged three days later. When last seen on July 28, 1942 he had no back pain and felt much better. The serum acid phosphatase is being repeated. The microscopic report was interstitial edema of the testicle.

Case 3

Patient J. S., male, aged 77, was seen at the office June 2, 1942. A diagnosis of acute urinary retention and carcinoma of the prostate gland was made. His catheterized urine was loaded with pus. Rectal examination revealed prostate Grade III in size, stony hard and fixed. The seminal vesicles were palpable. X-rays revealed osteoblastic metastasis of the iliac bones and right ischium. Serum acid phosphatase was 2.6 K. A. units. On June 4, 1942 he was admitted to the hospital and retention catheter drainage instituted. Following this a bilateral castration was done under spinal anesthesia. On June 11th catheter was removed and patient was able to void freely. He was discharged on June 13,

1942. Microscopic diagnosis—atrophic testicle. He was in the office June 30, 1942 at which time he had no symptoms and a half ounce of residual urine. He was last seen on July 28, 1942 with no symptoms and urine clear.

Case 4

Patient J. B., male, aged 65, admitted to the hospital in acute urinary retention August 21, 1942. Retention catheter drainage was instituted. Rectal examination revealed prostate Grade I in size, nodular, stony hard and firmly fixed. Seminal vesicles were not palpated. A biopsy of the prostate gland was taken by means of the Lowsley perineal biopsy punch. The microscopic diagnosis was adenocarcinoma of the prostate. X-ray examination revealed osteolysis of the left ischial tuberosity possibly due to metastasis. On August 24th serum acid phosphatase was 56 units, on August 25th it was 55 units and on September 3rd it was 91 units. This high reading of 91 units was due to the fact that the blood was hemolyzed. On September 3, 1942 patient had a bilateral castration under spinal anesthesia. On September 4th serum acid phosphatase was 28 units; September 10th it was 13 units. Patient continues to wear his retention catheter and it will be removed when the serum acid phosphatase becomes stabilized at the low level.

OUR experience has been that there is usually a reduction in the elevated acid phosphatase following castration. This may be immediate or delayed, just as symptomatic improvement may be immediate or delayed. Some cases show a drop in acid phosphatase, a remission of symptoms and yet the x-rays remain unchanged.

The question of abuse of a method as dramatic as this in its results is one which all surgeons are giving grave consideration. The lack of enthusiasm that patients have for castration, even when it is imperative for their immediate comfort and prolongation of their lives, is such that the indiscriminate use of the method may not get out of hand. However, it is my firm belief that a nodular prostate should be biopsied unless the acid phosphatase be high or x-ray metastasis be present. I do not believe we have any right to castrate a man in his forties or fifties without this protection.

A great deal has been said and more will be written concerning the mechanism of the effect of carcinoma of the prostate and its metastasis. There is a high percentage of acid phosphatase in the metastatic as well as the primary lesion. We believe that castration in these cases causes a reduction of acid phosphatase in the body as well as a reduction in the size of the lesion.

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131 FULTON AVE.

RESEARCH

LETHAL DOSE STUDIES WITH X-RAYS I

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ONE of the fundamental data on any therapeutic agent is the lethal dose.

The fact that 45 years after the introduction of roentgen rays in therapeutics, lethal dose studies have to be made, seems to require some explanation.

The history of the development of roentgen therapy accounts for this state of affairs. The development of roentgen therapy is unique insofar as a considerable amount of the fundamental knowledge concerning the action of this "new kind of rays" has been gathered from observations on human beings.

Roentgen therapy really is a child of roentgen photography. In the early times of radiology the very low output of the x-ray equipment required long exposures to obtain the desired bone structures on the photographic plate.

THE early students of x-ray noticed some reddening of the skin after exposure of parts of the body for x-ray photography, but little attention was paid to these skin phenomena. Another effect produced on the skin attracted more interest. On April 10, 1896, Dr. J. Daniels of Vanderbilt University reported that he had taken an x-ray of the skull of one of his colleagues and that his patient had lost his hair later on. Thus the cell destructive lethal effect of roentgen rays, their most outstanding biologic action, was discovered four months after Dr. Roentgen's preliminary publication of his discovery. Dr. Daniels' report was read by a young Viennese, Dr. Leopold Freund, who decided to make use of this epilatory effect for therapeutic purposes. He had to attend a girl suffering from an extensive hairy birthmark (naevus pilosus). Freund applied x-rays and was able to re-

port to the Medical Society of Vienna on January 15, 1897 the successful removal of this pathologic hair growth. He thus became the founder of superficial roentgen therapy. Freund's experiment was given wide publicity. All over the world physicians tried to cure pathologic growth of the skin by roentgen rays. Skin conditions were treated indiscriminately. Among them was also an epithelioma of the skin on the tip of the nose. Two Swedish physicians, Drs. Steenbeck and Sjögreen, treated the first skin cancer with x-rays on July 4, 1899 and achieved immediately an excellent result. The patient was still alive twenty years later (1920) and completely cured.

The second outstanding effect of x-rays, to destroy also malignant new growth, was thus discovered, and the Drs. Steenbeck and Sjögreen have to be credited as the founders of the roentgentherapy of cancers.

THE first observations on an effect of roentgen rays within the body were made by Dr. Nicholas Senn of Chicago in 1903. Dr. Senn reported reduction of the spleen in a leukemic patient. Dr. Senn thus has to be considered as the founder of the depth-therapy with x-rays.

About that time appreciation of the skin erythema as a forerunner of unpleasant skin reactions leading to very painful ulcerations started. The necessity of exploring the action of roentgen rays by animal experiments became obvious.

Throughout the world animal experiments continued to be performed in the same "hit and miss" manner which had yielded so many results during the early study of the action of x-rays on men. A host of papers on the biologic action of roentgen and radium radiation resulted. Among them most important observations are contained, as, for instance, the studies of Albers Schönberg in Germany on the effects on testes in 1903 and the observations of Bergonié, Tribondeau and Récamier in Paris and Halberstaedter in Germany in 1905 on the effects on the ovaries. Yet most of the experimental

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work was of very limited value for the problems in medicine.

THE fact remains that at a time when experimental medicine flourished in an unprecedented manner, and the efforts of carefully planned research led to the discovery of salvarsan, only traces of an experimental radiation therapy could be detected.

The difficulty of adapting the data of animal experiments to human conditions appeared almost insurmountable.

Thus the main interest in experimental radiation therapy was directed toward the human skin. The skin as the portal through which all rays have to pass, and the skin as the limiting factor for the amounts of radiation to be delivered into the depths of the body, was finally chosen as the biologic fundamental in dosimetry. The "skin unit dose" or "skin erythema dose" thus became the standard unit in radiation therapy. This standard was, however, not only applied in treating patients, it was also used when studying the effects of radiations in animals. Thus we have to note the unique fact of the application of a standard derived from observations on men to animals in experimental radiation therapy.

As long as skin effects were in the center of radiation research, this procedure had some justification. However, this method was also used when studying effects of roentgen and radium rays on animal organs. This procedure has considerably increased the difficulties in adapting data obtained in animal experiments to medical problems and contributed to hamper the development of a systematic experimental radiation therapy.

THE lack of a thorough knowledge of the sensitivity of organs and of methods for their study was less felt as long as the chief concern of the radiotherapist was the skin, and the treatment of the primary lesions of malignant tumors in the body.

However, radiologists became more and more aware of the fact that as long as no etiologic treatment of malignant tumors was possible, decisive progress in the radiological treatment of malignant tumors could only be achieved when methods for a successful treatment of widespread metastases could be developed.

TOTAL body irradiation seemed to offer great opportunities. In therapeutic enthusiasm various methods for such a treatment have been suggested based on empiricism chiefly. Inefficiency of these methods, or unpleasant accidents during general body irradiation, necessitated their abandonment. The entire idea came more or less into disrepute. No experimental attempt was made to study the lethal dose of x-rays in animals and to evolve some correlation factor which might permit the estimation of the lethal dose in man. The problem of the lethal dose of x-rays and total body irradiation would have fallen entirely into oblivion if the discovery of artificial radio-active substances as, e.g., radio-active phosphorus, sulfur, etc., had not raised new hopes for a selective treatment of widespread tumor metastases. Besides other problems outside the topic of this paper, successful solution of this problem largely depends on an exact knowledge of the radiosensitivity of organs and the lethal dose.

Reports of the first decade of roentgen therapy recorded the fact that roentgen and radium radiation does not only exercise lethal effects on cells and tissues but also on entire animals. However, up to most recent times, research workers only casually reported on lethal effects in animals. Due to the fact that experimental radiology up to now had not developed standard methods, the scattered data are mostly not comparable because of lacking uniformity in procedure. For the same reasons the results are contradictory even for the same animal species. As a further unique fact in the development of radiation therapy, it remains to be noted that forty-five years after introduction of roentgen and radium radiation as a therapeutic agent, the lethal dose is practically unknown. This state of affairs made lethal dose studies with roentgen rays most necessary and desirable.

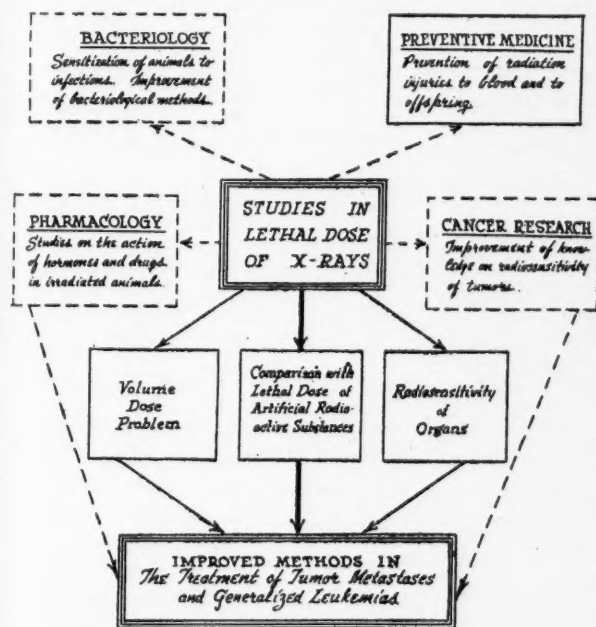
THUS, four years ago, I started with a systematic study of the lethal effect of roentgen rays on various animal species under standardized irradiation conditions. The main purpose of these investigations was to determine the following:

1. To establish the lethal dose for various animal species.
2. To relate the lethal dose to body

- weight or volume of body, if possible.
3. If there is no relationship to body weight or volume, to consider the problem of sensitivity of various species.
 4. To establish the percentage of lethal dose for the destructive effects on organs and tumors for any animal species.
 5. On the basis of these figures one should search for correlation factors applicable to men.

the volume dose problem and that of organ radiosensitivity. These problems form the inner circle, but this study is not confined to experimental radiation therapy, proper. It extends into pharmacology and cancer research. A practically undeveloped field is the study of the action of hormones and drugs on animals after total body irradiation. Valuable support of the chain of reactions induced in the animal body by radiation from the use of drugs is to be expected. The results of

the study of the radiosensitivity of animal tumors expressed in percentage of lethal dose for their species most probably will be an easier adaptation to human problems. Pharmacology and cancer research thus form the outer circle of our problem. Side problems extending into bacteriology (sensitization of animals to infection and through that improvement of bacteriologic technique) as well as relations to preventive medicine (experimental base in the study of radiation injuries) are mentioned as some examples to demonstrate the close interaction with other branches of medical science.



We have made a CHART for better understanding of the importance of these problems.

As can be seen from this chart, the lethal dose problem is a central problem. Our main objective is the improvement of the treatment of wide spread tumor metastases and leukemias. In this effort much hope is attached to the use of artificial radio-active substances by comparing the effects of externally applied radiations with the same amount of radiations from a source within the body. Successful accomplishment means the clarification of

various reasons we started with a cold-blooded animal, in using the common goldfish, *Carassius auratus*. Various doses of x-rays were given and the number of dead fish for each dose recorded daily. Thus lethal dose curves were obtained, presenting the results in the form of graphs where the abscissa values denote the days after exposure and the ordinates represent the percentage of mortality.

It was found that with increasing doses up to 1500 r the mortality increased accordingly. 1500 r represent the threshold

of radiation which kills all individuals within 14 to 18 days. The inclusion of the time factor in the definition of the lethal dose is necessary, because it was found that a dose of 1200 r produced 100 per cent mortality but only after 28 days.

An increase of the doses beyond the threshold value, however, up to 10,000 r did not produce any greater effect and the 100 per cent mortality was again observed only after 14 to 18 days.

The next step was the construction of the "mortality curve." This means a graphic presentation in which the ordinates again denote the percentage of mortality but the abscissa values give the doses in r units. Such curves can be drawn for any day after the exposure. In applying this procedure, e.g., for the 18th day after exposure, we obtained a sigmoid-shaped curve of a kind well known from the studies with drugs and x-rays, when single cells were used as test objects.

To enter into discussion of the significance of these curves would be tempting, but is beyond the scope of this paper.

NEXT our attention was directed toward the lethal mechanism. Autopsies revealed excessive shrinkage of the spleen as the outstanding characteristic. Histologic examination demonstrated severe destruction in all of the lymphatic system.

The study was then extended to warm-blooded animals. Here mice were used as a test object. The methods applied were the same. After the study of the effects of various doses of roentgen rays over a period of 28 days, the lethal dose curves

were drawn. The data thus obtained furnished the points for the mortality curves, which again were found to be of sigmoid shape. However, the dose which killed all animals within 14 to 18 days was found to be 1000 r. These data are given as a preliminary report. Full details will be presented later on elsewhere.

ONE conclusion can already be drawn from these data, namely, that there is no simple relationship as regards body weight and lethal doses between the two animal species studied so far. While the average weight of goldfish is between 2 and 3 gm. that of mice is 19 to 24 gm. Whether these differences are due to disparities in volume or are a matter of a specific radiosensitivity can only be judged in the light of further studies.

Thus the first steps toward the realization of the plans outlined in this paper have been made.

What has been achieved was made possible only by the kind cooperation I found, wherever I went. I wish to express my appreciation and gratitude toward all who supported my investigations.

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Discussion by A. L. Loomis Bell, M.D.

The work reported by Dr. Ellinger seems to have great significance. In the first place, as Dr. Ellinger has stated, even though x-ray therapy has been used in malignant disease for at least forty years, there are as yet no data available upon which to base an opinion as to the amount of radiation which can be safely given to the entire body of a patient in the case of metastatic malignant disease or generalized malignant disturbances such as the lymphoblastomata and the leukemias. There can be no question but that general body radiation would be advantageous in these cases if one knew how far such radiation could be carried safely.

Consideration of lethal doses of radiation to the whole body is of paramount importance in the use of radio-active elements such as radio-active phosphorus in the leukemias. Here again we do not know the lethal amount of radiation as it is used in this way and, therefore, we cannot take full advantage of this useful form of therapy.

The use of radio-active elements brings up a point which is most important, that is, a correlation between the lethal effect of drugs and the lethal effect

of radiation. With the use of toxic radio-active chemical compounds, would the drug effect decrease the amount of radiation necessary to prove lethal, or would the lethal dose of the chemical compound be uninfluenced by the radiation coincidentally given?

Dr. Ellinger's work, it seems, opens up an entirely new field of investigation along these lines.

Many other interesting problems are suggested by Dr. Ellinger's work, principal among which are the effects of radiation in increasing the susceptibility of irradiated animals to pathogenic organisms to which they are normally either not susceptible, or where susceptibility is only evident after long periods of time. If lethal doses of radiation could be accurately determined for these animals, sublethal doses could be given which should increase susceptibility and save valuable diagnostic time. Furthermore, sublethally irradiated animals might well be used in experimental work involving transplantation of tumors, and the production of tumors by carcinogenic substances.

It is to be hoped that Dr. Ellinger's investigations can be carried out with the larger laboratory animals, and that the obvious collateral problems can also be worked out.

GLUCOSE TOLERANCE IN THE OBESE MIDDLE-AGED DIABETIC

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Abstract

FIFTY-FIVE patients with diabetes mellitus were studied in the diabetic clinic. The only basis for the selection of these patients was that they were obese and over the age of 40 years at the onset of their diabetes. The response of these patients to treatment was observed and repeated modified Exton-Rose Tests were done. The results showed:

Group 1) Patients treated at the onset of diabetes with low caloric diets showed marked increase in their tolerance for carbohydrates. Fifty per cent of these patients eventually showed normal glucose tolerance tests.

Group 2) Obese diabetics of recent onset who restricted carbohydrates in their diet, but who did not lose weight, did not show normal return of glucose tolerance.

Group 3) Obese patients who lost weight before treatment was instituted (because of neglected diabetes) did not show such remarkable gain in tolerance.

Group 4) Those patients who remained obese and neglected their diabetes for many years did not respond to treatment like the case of recent onset; their glucose tolerance test showed marked hyperglycemia. Similar obese patients who became thin after many years were more easily controlled and the glucose tolerance tests showed curves representative of moderate impairment of carbohydrate tolerance.

Group 5) Obese patients who did not restrict their food intake showed no im-

provement in glucose tolerance despite insulin administration.

It was concluded that the course of mild diabetes mellitus seen in obese middle-aged diabetics is modified by:

- a) how soon after the onset, treatment is instituted;
- b) weight loss due to dieting and not to neglect;
- c) cooperation of the patient in dieting.

Discussion by Henry M. Feinblatt, M.D.

I think Dr. Handelsman has done well to call our attention to this important group of middle-aged obese individuals who show impaired tolerance for sugar and who run infrequent periods of glycosuria. As he demonstrated in his graphs, after restricting the dietary the sugar returned to the normal levels.

Of course, the question arises as to whether this group should be classified as clinical diabetes mellitus. While it is true that some of them may in the future gain weight again and develop true diabetes, a certain proportion remain free from frank diabetes.

Claude Bernard in his lectures on diabetes frequently referred to the "hyperglycemic state" and tried to set the stage as to when physiological blood sugar levels end and pathological levels begin. The change from the physiological to the pathological appears to be not gradual but sudden. He finally concluded that only a persistent hyperglycemia with persistent glycosuria was the *SINE QUA NON* of diabetes mellitus.

Impaired sugar tolerance curves are not uncommon in non-diabetics. I reported a group of twelve cases with impaired tolerance curves in gastric carcinoma. Diagnosis was confirmed at autopsy which also revealed involvement of the liver. I have had similar findings in cases of chronic arthritis and hyperthyroidism.

I am inclined to agree with Newburgh and Conn, who suggest that the occurrence of hyperglycemia and glycosuria in the middle-aged obese is dependent upon liver impairment. However, I do not subscribe to their view that it is due to fat accumulation in the liver. In cyclic vomiting and fatty cirrhosis of the liver, conditions in which tremendous fat accumulation in the liver occurs, low sugar levels and good tolerance have been observed. This fits in closer with the Claude Bernard experimental evidence that the liver plays a principal role in the utilization of sugar in the production of glycogen and on the other hand the production of sugar from the glycogen for the system.

It appears to be more likely that in this obese group, the obesity is the primary condition and the moderate hyperglycemia and occasional glycosuria a secondary state.



Thalamocortical Mechanisms Involved in the Electrocardiogram

By Title Only

Dr. Edward W. Dempsey and Dr. R. S. Morison, Department of Anatomy, Harvard Medical School.

Discussion by Dr. Margaret Rheinberger, The Jewish Hospital, Brooklyn, N. Y.

CONTEMPORARY PROGRESS

PHYSICAL THERAPY

Quantitative Serologic Studies in Early Syphilis under Treatment with Artificial Fever Alone and Artificial Fever Combined with Chemotherapy

W. M. SIMPSON, D. L. ROSE and W. W. KENDELL (*Venereal Disease Information*, 23:403; 408; 411, Nov. 1942) report a study of the effect of fever therapy alone or combined with chemotherapy on the quantitative Kahn test in patients with primary or early secondary syphilis. The technique of fever therapy employed with the Kettering hypertherm has been previously described. In the treatment with fever therapy alone, ten weekly treatments of five hours each were given, maintaining the rectal temperature between 105° and 106° F. It was found that fever therapy alone did not prevent clinical relapse, and that such relapse was always preceded by a rise in the quantitative serologic titer as determined by the Kahn test. In another series of cases, twelve three-hour fever treatments or ten five-hour treatments were given; and with each treatment an arsenical preparation and a bismuth compound were administered; following these combined treatments the arsenical and bismuth compounds were given concurrently for an additional twenty weeks. In all these cases the quantitative serologic titer fell progressively to negative and no serological or clinical relapse occurred. The rapidity of the fall in the serological titer depended upon the initial titer, the fall being more rapid with the lower titers. Patients in this series have been under observation for four to eight years without showing serologic or clinical relapse. In a third series of cases, a single intensive combined fever and chemotherapy treatment was given. Just before the fever treatment was begun an intramuscular injection of bismuth subsalicylate was given (0.25 gm.). A ten-hour fever treatment was given in the hypertherm with the rectal temperature maintained at 106° F. The arsenical mapharsen was administered during the fever treatment. In 2 cases the mapharsen was given by the intravenous drip method but in other cases it was given intravenously by the

syringe method; from two to four injections of 60 mg. each were given in some cases; in others four injections of 40 mg. each. No further treatment was given. This resulted in a progressive fall in the quantitative serologic titer and clinical cure essentially the same as that observed in the patients treated with larger total amounts of fever therapy and chemotherapy over a longer period of time. The patients in this group have not been under observation for a sufficient length of time to permit "adequate clinical evaluation" of this method of treatment.

COMMENT

Fever alone, by whatever method, was early found by all workers to have a little influence in reversing the serologic tests in primary or early secondary syphilis, a most disappointing finding, after long bouts of fever frequently repeated. It was then most gratifying to discover that the combination of hyperthermy and chemotherapy was successful in reversing the tests and that clinical relapses were no longer the rule. Still, long and frequent doses of hyperthermy and a long course of chemotherapy were trying to patient and practitioner. "The Five Day Treatment" by Chargin, Hyman and Leifer was the next step in the procedure and in the past year "The One Day Treatment Cure" has been tried out with promise of marked success. As in other lesions, the sooner the patient is treated the better for him, before irreversible lesions occur. Fever therapy is an important part of military medicine to-day and, being used in a great number of cases under careful supervision, we should have an excellent opportunity to judge of its merits in a relatively short time.

M.C.L. McG.

Basis for Transitions in Physical Treatment of Poliomyelitis

JESSIE WRIGHT (*Archives of Physical Therapy*, 23:662, Nov. 1942) states that observations made during the 1941 outbreak of poliomyelitis in Pittsburgh, Pa. indicate that the early "judicious" use of hot fomentations and physiologic movements as pain and tenderness subside tend "to absorb products of effusion, relieve muscular spasm and limit formation of scar tissue which may ensnare normal neuromuscular units." The author is of the opinion that the most important con-

tribution of Sister Kenny to the treatment of poliomyelitis is not so much the development of her technique as "in arousing the medical profession to the advantage of using such measures early in the acute stage of the disease." In a series of 30 patients with poliomyelitis in whom physical therapy with hot fomentations was begun as soon as the diagnosis was established, all but 3 responded well to the treatment. In these 3 patients, the history indicated poor vasomotor tone before the onset of poliomyelitis; good results were obtained in these cases when alternate hot and cold applications were used intermittently, the skin being allowed to become almost dry between treatments. In using hot fomentations it is understood that in all cases the packs are allowed to cool gradually; this gradual change in temperature the author has found increases the vasomotor tonic effect. After the fomentations "or other physical methods" have reduced muscle spasm, pain and tenderness, proprioceptive movements may be begun, using a "gentle, graduated rhythmic motion" that causes no pain. When fomentations are used in the early stage of poliomyelitis without splinting, it is important that the affected parts are properly aligned at the time when fomentations are changed; this the author states "may be, in effect, splinting." When the pain, tenderness and muscle spasm have subsided, and the proprioceptive movements and later reciprocal active movements have developed muscular function, the patient should be al-

lowed to stand up for a few moments at a time "to improve balance and muscle sense" before attempting to walk. Some support as "a simple balancing adjustment" may be necessary when the patient resumes less restricted activity. Even after range of movement and useful function of the muscles are restored, the patient should be kept under supervision and not allowed unrestricted activity as the affected muscles tire more easily and may be exhausted and weakened by overuse.

COMMENT

The great merit of Sister Kenny's treatment is that it is begun in the acute stage, is kept up steadily, that rest is not interfered with but early motion is instituted, just as soon as pain and tenderness have subsided and, that the patient is early trained to make the movements himself. Comparing results since 1940 in this country with those of cases from previous epidemics, with their resultant deformities despite all measures, one must concede that whilst awaiting the great discovery for cure that research laboratories the world over are hoping for, we should accept this proven method and use it to

the greatest good of the greatest number. Overtreatment is to be condemned in this as in other physical therapeutics by those not especially trained in the work. These tissues are easily fatigued. Other physical measures may be added as needed in cases of residue requiring treatment after the acute stage, but that is a chapter in itself. The important message at present is to begin treatment as early as the diagnosis is made or the symptoms appear.

Hot fomentations for the relief of pain and tenderness have been part of our armamentarium since the infancy of the race, hence

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the logic of their present use. Gentle passive movements by trained and skilled physicians and active exercises, graduated and graded, are among the most valuable measures the physical therapist possesses.

At present, courses are being given to make this knowledge available to greater numbers of physicians, nurses and technicians, so we may look forward to happier and healthier children no longer bearing the marks of the great scourge as heretofore.

M.C.L. McG.

Sustained Internal Radiant Heat in Lesions of the Pelvis

B. N. BENGSTON (*Archives of Physical Therapy*, 24:26, Jan. 1943) describes a heating unit that can be introduced into the vagina for treatment of inflammatory pelvic diseases. The apparatus is light in weight and easily transported. The heating unit is an ordinary tubular light bulb with a special filament enclosed in "a sturdy glass speculum" to prevent breakage. It is connected with a voltage regulator which is so constructed as to indicate the milliamperage of the current and also the temperature of the vaginal mucosa (by means of colored segments). With this apparatus in operation, radiant heat is distributed "almost equally into all portions of the vaginal vault." In the first series of cases treated, the duration of each treatment was only two hours; none of the patients complained of discomfort during treatment and several stated that they could easily tolerate a longer period of treatment. Subsequent clinical experience indicates that treatment could be given for ten hours safely and, that such treatments give the optimal clinical results. The patient is able to assume almost any ordinary position and to change position without removing or disturbing the speculum; many patients sleep for four to six hours during treatment. On the basis of his clinical results, the author considers this unit to be "the simplest, safest and most effective" device now available for heating the pelvic tissues.

COMMENT

Since earliest times heat in every available form has been used in pelvic inflammatory disease with more or less success depending on the length of time and frequency of repetition of treatment. Success attends prolonged sessions but patients tire easily, the instru-

ments or electrodes may be disturbed by movement and in some cases burns may result; especially has this been so where very hot water has been used, the vaginal bag in the Elliott set-up has broken, or too great current has been used with diathermy. Dr. Bengston's patients have shown they can take the ten hour treatments while they rest, read, work or slumber, with great advantage. We will have to wait until after the War, however, since priorities prevent manufacture of new instruments. So longer treatments with the older methods, plus short sessions of general hyperthermy when available, must be relied upon for the present. Patients generally fall asleep under the monotonous purr of the diathermy machine and are all the better generally for the rest and relaxation.

M.C.L. McG.

Physical Medicine in Industry

W. BEAUMONT (*British Journal of Physical Medicine*, 5:157, Nov.-Dec. 1942) reports that in some industries in Great Britain, particularly the collieries, an ultra-violet lamp is used for general "sun baths" as a preventive against colds and as a "tonic"; in some cases a daily fixed dose is given each worker throughout the year; in others "sun baths" are given twice a week beginning with two minutes and increasing by half a minute to a maximum of five minutes. In the treatment of many conditions, various forms of physical therapy have proved useful. For strained ligaments and muscles, the author prefers infra-red irradiation with or without massage; but for strains affecting joints best results are obtained with the galvanic current with or without potassium iodide solution or histamine, followed by the application of an elastoplast bandage to "encircle the joint completely," without further restriction of motion. For carbuncles and axillary abscesses (the latter of frequent occurrence in women workers), short wave diathermy has proved most effective. If a short wave diathermy machine is not available, treatment with a radiant heat lamp for ten minutes followed by the mercury vapor arc lamp is also suitable. This radiant heat and ultra-violet therapy has also proved most satisfactory in the treatment of whitlows and septic fingers. In muscular rheumatism an "Aeratone" bath—aerated moving hot water—gives good results.

COMMENT

Frequent reports in journals, magazines and newspapers have been made of the greater care being taken of workers in the past year in Great Britain than before the War and in its early stages. A general cleansing bath, with exposure to ultra-violet on a moving platform daily, or twice or thrice weekly, is particularly stressed as of great aid in preventing illness and so reducing absenteeism. In traumatic conditions, gentle heat with or without massage and best of all gentle active exercises are started early. Usually this should suffice; however, if available, the whirlpool bath combining heat, water massage and underwater exercise is most effective, as in the galvanic bath, which per se is quite capable of stimulating muscles and aiding nutrition apart from any medication, followed by appropriate exercise which is physiologic and most important. As short wave diathermy is interdicted except in hospitals, other measures are employed, by way of replacement, for infections. The tried and true older remedies, long before short wave was used, radiant heat and light followed by small doses of ultraviolet, as usual prove most effective. Minimal doses do good, large doses of ultraviolet defeat the purpose, weaken skin resistance and the lesions may multiply. All open infections are benefited, resolution hastened and convalescence shortened by these measures of superficial heating by infrared or radiant light and ultraviolet generators and particularly when short wave diathermy is used carefully and understandingly. Building resistance by natural sunshine, good food, adequate rest, sleep and proper hours of work, with one day's rest in seven, can further prevent absenteeism.

American workers could take advantage of these lessons and save themselves much illness, injury and absenteeism. Too long hours of labor, up to 60 a week in the first days in Great Britain, soon reduced the output alarmingly. Rest periods, 48 hours work, free Sundays and attention to minor ailments replaced the former inattention to the workers' capacity and speeded up production. Some American firms are paying attention to the three R's most needed to promote health: Rest, Relaxation and Recreation in judicious amounts for their workers, in addition to proper food in adequate amounts. For the first time in their lives the British in the lower income or no income brackets are having enough to eat and their families' health is the subject of concern and, if fortunate enough to have well-paying jobs, they are responding, with less general illness than previously afflicted them. Poverty with its concomitant fatigue, hunger, anxiety, and feeling of insecurity due to lack of work is the great breeder of disease. Give a man a satisfying job at a decent wage and he will make his own healthful environment with proper teach-

ing; he will then flout all subsidising from "the womb to the tomb" and he and his children will rise to heights of health and achievement heretofore undreamed of.

M.C.L. McG.

The Electrical Stimulation of Denervated Muscle

S. L. OSBORNE and F. S. GRODINS (*Physiotherapy Review*, 22:291, Nov.-Dec. 1942) from a review of recent studies on the physiology of skeletal muscles and their stimulation by electric currents come to the conclusion that theoretically the ideal stimulating current for normal muscle would consist of "a series of pulses of instantaneous rise which gradually increased in intensity from threshold to maximal and in frequency from zero to one hundred per second." For the stimulation of denervated muscle, the current should be of some form, but with individual pulses of longer duration and lower frequency, with perhaps a more gradual rise. In practical work, it is not necessary to use such "ideal currents." An apparatus that delivers sine waves of frequency from 0.1 to 100 cycles per second with provision for amplitude modulation (surging) would fulfill the conditions for muscle stimulation. A normal voluntary contraction of muscle is "a tetanic contraction"; such a contraction can be produced in denervated muscle by adjustment of the frequency. Normal muscle responds to a hundred cycle wave "surged" at twenty to thirty per minute, but a recently denervated muscle responds to a twenty cycle wave. The authors maintain that clinically and physiologically galvanic and faradic currents should not be so sharply differentiated as they have been in physiotherapeutic practice; from the point of view of muscle stimulation, "a 'galvanic' current simply represents a 'faradic' current of very low frequency."

COMMENT

It is refreshing to note that the galvanic current is again engaging the attention of research workers and the profession at large. This was one of the first currents to open to our vision a new world. Until the discovery of the high frequency currents, it was employed by a number of painstaking physicians well acquainted with its possibilities and proper use. It was less and less used as diathermy came to the fore, since this required but little study and its application was easy.

The galvanic or direct current has a definite field of usefulness in muscle and nerve testing and nerve injuries, electrophoresis, certain gynaecologic and vascular conditions, etc. The

galvanic, faradic and sine waves all have their place in therapeutics. We welcome whatever research can tell us concerning these useful but neglected measures. M.C.L. McG.

PUBLIC HEALTH, INDUSTRIAL MEDICINE AND SOCIAL HYGIENE

A Community Study of Carriers in Epidemic Poliomyelitis

H. A. WENNER and A. E. CASEY (*Journal of Clinical Investigation*, 22: 117, Jan. 1943) report a study of carriers of the poliomyelitis virus by examination of the stools in 176 of 181 persons living in a community affected by a widespread epidemic of poliomyelitis. Tests were begun fifty-two days after the onset of the epidemic and twenty-four days after it had waned; this was undoubtedly "too late to detect the maximum number of carriers," as according to the majority of reports in the literature, the usual carrier period is three weeks. The poliomyelitis virus was demonstrated, however, in the stools of 3 children, two to six years of age; none of the adults examined showed positive stools. Of the 3 children who showed positive stools only one had typical poliomyelitis with paralysis of one leg that did not persist; one positive stool was obtained three days after the onset of the paralysis, and a second twelve days later. One child had an abortive attack of poliomyelitis without paralysis; one positive stool was obtained two weeks after recovery. The third child had "a poorly defined antecedent illness," from which he had entirely recovered when the positive stools were obtained, the last more than a month after the illness.

COMMENT

It is to be assumed from this limited study that some symptoms of the disease, however mild, accompany the carrier condition which may exist for several weeks after recovery. It is regrettable that the study could not have been made during the acute period of the epidemic.

E.G.B.

Tetanus Toxoid, Its Use in the United States Army

MAJOR A. P. LONG (*American Journal of Public Health*, 33:53, Jan. 1943) reports the use of tetanus toxoid for immunization against tetanus in the Army

of the United States; the procedure was adopted as a routine in the early part of 1941. A fluid or plain tetanus toxoid procured from commercial laboratories licensed by the National Institute of Health is employed; a fluid rather than an alum-precipitated toxoid is used on the basis of British and French experience, as being effective and less likely to cause reactions in adults. In the Army, the first dose of tetanus toxoid is given as soon as possible after entrance on active duty; two subsequent doses are given at intervals of three weeks; each dose is 1 ml. As a rule a single stimulating dose of 1 ml. is given at the end of a year, but this stimulating dose may be given a month before troops are sent to an active theater of war provided that this is at least six months after administration of the last immunizing dose. An emergency stimulating dose is given if any injury (wound or burn) is incurred on the battlefield or under any other conditions in which there is danger of tetanus infection. Antitoxin is not used for prophylaxis unless the records indicate that the injured person has not been given at least the initial series of toxoid injections. The record of doses given is recorded on the soldier's identification tag as well as in his personal record. Reactions have not been severe or frequent; in a few instances "reactions of sensitivity" have occurred immediately following the injection; improvements in methods of preparing the toxoids have reduced the incidence of such reaction to less than one in 10,000 injections. No "large-scale studies" of antitoxin levels in the blood of persons immunized with tetanus toxoid have been made in the Army; studies in small groups have indicated that the antitoxin level is above that required for protection against infection after the "stimulating" dose, and in many instances after the three initial doses. Under ordinary conditions the incidence of tetanus is low in the Army of the United States, as well as in the ci-

vilian population of the country. Since the routine tetanus immunization program was begun in June 1941, only 4 cases of tetanus have been reported in the entire Army; none of these occurred in immunized persons; no cases of tetanus have been reported in battle casualties, although in some of the battle areas "considerable potential danger of tetanus infection is known to exist."

COMMENT

The significant fact denoted is that anti-toxin is not used for prophylaxis where the soldier has been immunized with at least the initial toxoid series. It indicates also that one of the major hazards of combat service has been almost completely eliminated.

E.G.B.

The Hospital and the Syphilis Problem in Prospective Blood Donors

W. W. FRYE, ALVIN F. KELLER and R. H. KAMPMEIER (*Journal of the American Medical Association*, 121:182, Jan. 16, 1943) report that the experience at Vanderbilt University Hospital indicates that a certain percentage of voluntary blood donors apparently in good health show a positive or doubtful positive reaction to serological tests for syphilis. At this Hospital 3.3 per cent of 19,141 donors showed such reactions. A questionnaire was sent to 800 hospitals in all parts of the United States, inquiring in regard to the practice of making serologic tests for syphilis in blood donors, and whether those showing positive or doubtful positive tests were notified or not. Of the 603 hospitals replying to the questionnaire, 6.5 per cent did not test blood donors for syphilis before using their blood. Of the hospitals who made serologic tests, 12.5 per cent did not notify donors where found to give a positive or doubtful positive reaction. The methods of notification when this was carried out varied according to the size of the hospital and the type of administrative control. At the Vanderbilt University Hospital, it was found necessary to place one member of the staff (one of the authors) in control of the notification of blood donors giving positive or doubtful reactions to serologic tests. All such donors are now notified by letter or by personal interview; if there is no response to the letter, a visit is made, and the need of a second blood test is explained to the donor. If the second test is positive, the donor is referred to his

family physician or to a clinic for further diagnostic study and for treatment. The authors are of the opinion that if hospitals do not notify blood donors with positive or doubtful positive serologic tests, such persons should be reported to the health department, and the department should assist in getting such persons under treatment, in the same way that it now assists local draft boards to control men showing a positive reaction on first examination. Such measures of notification, they believe, both contribute to the syphilis control program and render a definite service to persons "who are unaware of the fact that they have syphilis."

COMMENT

The incidental development of the blood bank system must interest every public health official. The making of blood tests should be invariable routine and doubtful or positive findings should be reported to the individual without exception either by the hospital or through the local department of health in whatever manner will most assure subsequent corrective treatment. Follow-up of delinquents is certainly a health department function.

E.G.B.

Etiology of Acute Illness Among Workers Using Low-Grade Stained Cotton

R. SCHNEITER, P. A. NEAL and B. H. CAMINITA (*American Journal of Public Health*, 32:1345, Dec. 1942) report an investigation of an illness occurring among workers in cotton mills, cotton seed processing plants, upholstering and mattress making plants using a low grade, dusty, stained cotton. This illness occurs among workers exposed to high dust concentrations, the severity of the symptoms varying with the degree of exposure. It is characterized by a sudden onset within a few hours after exposure and short duration of the acute phase. In addition to chills and fever, the chief subjective symptoms are conjunctival irritation, substernal oppression, dryness of the throat, generalized aches, fatigue, headache, cough, anorexia, nausea and vomiting. Samples of cotton from plants where this illness occurred showed no toxic gases, chemically extractable substances or pathogenic fungi that might cause the illness. A Gram-negative, rod shaped bacterium was recovered in numbers from 3,000,000 to more than 10,000,000 per gm. from all samples studied; this bacterium

was not isolated from high grade cotton. Because of its cultural characteristics, it was placed tentatively in the genus *Aerobacter*. It was found to produce an endotoxin inhalation of which is apparently the cause of the illness in workers using low grade cotton. Experimentally, similar symptoms could be produced in humans by inhalation of dust from normal cotton contaminated with the cotton bacterium or its culture filtrates; inhalation of dust from stained cotton containing large numbers of the cotton bacterium; and inhalation of a fine mist of a sterile filtrate of cultures of this organism. Since the illness occurring among workers exposed to inhalation of high concentrations of low grade stained cotton dust resembles this experimentally produced illness, and also resembles an acute fever occurring among workers exposed to flax, jute, grain and hemp dust, it is suggested that toxic products of the cotton bacterium or some closely allied species may be the etiological agent in these diseases.

COMMENT

This is an interesting first step in demonstrating the further relationship of bacteria to an industrial illness in the processing of plant fibers, especially cotton. The demonstration of a bacterial infection damaging cotton itself and producing worker disability would indicate a substantial reason for its control or elimination in growing crops.

E.G.B.

Atmospheric Contamination from the Casting of Magnesium

C. R. WILLIAMS (*Journal of Industrial Hygiene and Toxicology*, 24:277, Nov. 1942) reports a study of the atmospheric contamination from the casting of magnesium. He notes that the production of magnesium and magnesium alloys has been "greatly stimulated" by the demands of war industries, and the industrial hazards involved have assumed greater importance than before. He has found that in American industries, the most important of the contaminants in magnesium foundries are the fluorides; the fluoride contamination is greatest during the "shakeout" operation, and in most instances avoidance of a dangerous degree of contamination can be avoided by the provision of suitable exhausts. If such exhausts are not provided, high concentrations of fluorides occur "over wide areas" around the furnaces. No evidence was found that concentrations of magnesium oxide or sulfur dioxide exceed allowable concentrations. The British report "considerable trouble" from dermatitis and ulcers caused by chromic acid from chrome pickling tanks for magnesium; this appears to be due to lack of ventilation for the tanks. If the tanks are ventilated this hazard can be avoided.

COMMENT

This article indicates fluorides as another of the significant air contaminants to be considered in evaluating the extent and volume of exhaust required.

E.G.B.

OPHTHALMOLOGY

Congenital Color Blindness

H. CADAN (*Medical Record*, 156:21, Jan. 1943) points out that under war conditions the question of color blindness assumes increasing importance, as almost all branches of military service demand normal color perception. Because of the handicap of color blindness, many men "of otherwise perfect officer caliber" are prevented from serving where they would be best qualified. So far it has not been established just where the defect lies in congenital color blindness and treatment must be empirical. The author's

treatment includes: Vitamin A as a factor in the visual purple metabolism; vitamin B complex as a factor in nerve tissue metabolism; iodine to stimulate the general body metabolism; electrical stimulation of the eye in the form of low frequency-low tension currents which both increase the circulation of the tissues and stimulate motor and sensory nerve endings. Vitamin A was given by mouth, 75,000 units daily. Vitamin B complex was given by subcutaneous injection, plus additional vitamin B complex by mouth. Five drops of tincture of iodine were

given once daily. The electrical treatment consisted in the application to each eye of interrupted faradism for five minutes and the sinusoidal current for ten minutes to the point of toleration. The persons treated showed "mild red-green blindness"—ability to distinguish primary colors but not the numeral or characters in the Schilling and Ishihara charts. Of 45 persons who had failed to pass the color vision test (including these charts), 35 passed a re-examination after six to fifteen treatments; 2 showed improved color vision but not sufficient to be considered normal; 8 discontinued treatment. Those who showed normal color vision after treatment in December, 1941 were re-examined in July, 1942 and still showed normal color perception. Whether this improvement will be permanent cannot yet be determined. The author notes that ophthalmoscopic examination should precede treatment, as the electrical treatments are contraindicated by arteriosclerosis or vascular disease. However, the persons in the age group applying for treatment rarely showed vascular degenerative changes.

COMMENT

This optimistic report is at variance with previous experience. A person who is color defective may be trained to distinguish green from red as used in street signals because of difference in density rather than because of specific color distinction. Testing for railroad and steamship service includes the effect of fog and the like, distance and size of signals, making a much more reliable test. Now that vitamins have reached the radio announcer, we can expect a series of remarkable achievements that require confirmation and the test of time.

R.I.L.

Particles of Steel Within the Globe of the Eye

F. D. GULLIVER (*Archives of Ophthalmology*, 28:986, Nov. 1942) has found that steel particles within the globe of the eye constitute 98 per cent of all foreign bodies in the eye. In more than 1800 cases of intra-ocular foreign body, the author has seen only 10 in which the foreign body was not steel. In his experience such steel foreign bodies come mostly from the heads of steel hammers and edges of chisels that are imperfect, with overhanging edges. If the foreign body is small and sharp it may enter the eye without causing much pain, but such

cases are rare. If a patient with an eye injury gives a history of working with hammer and chisel, or of being in the vicinity of such work, the presence of a steel foreign body in the eye should be suspected, and a roentgenological examination made. The author has been able "to determine the wound of entrance" in only 65 per cent of his cases, and the roentgenological examination must be made by a radiologist who has made a specialty of this work. In most cases a steel foreign body can be withdrawn with a giant magnet. When the current is applied to the magnet there is either a reaction manifested by sudden pain or a pulling sensation in the eye or the foreign body may become visible in the anterior chamber or posterior to the iris. If no such reaction occurs or the foreign body does not become visible after intermittent application of the magnet over the site of the foreign body for five or ten minutes, the magnet should be tried again on succeeding days, but as a rule, the author has found that if there is no reaction on the first day, the treatment is not likely to succeed. If an intra-ocular foreign body cannot be removed by means of the magnet, the failure may be due to the fact that there is an inflammatory exudate covering the particle, or that it is only slightly magnetic (some manganese steels are less magnetic than ordinary steel). If the foreign body must be removed operatively, the anterior route is preferable. In the author's cases, the initial injury to the eye caused irreparable loss of vision in 2 per cent; serious infection occurred before removal of the foreign body in 4 instances. Excluding cases of irreparable damage by the initial injury and those in which the foreign body could not be removed, 80 to 90 per cent of the patients had normal or only slightly less than normal vision after removal of the foreign body.

COMMENT

The final results as reported here run much higher in visual recovery than usual. There has been a long controversy between those who prefer removal of the foreign body between the fibers of the suspensory ligament of the lens, then through the pupil into the anterior chamber, and those who prefer the scleral approach. If the former can be done with less damage than through an incision in the sclera near the fragment in the vitreous, it is very fortunate, but many do not respond and the foreign body must be removed through a scleral incision. The most important obser-

vation in this article is the statement that in 35 per cent of the cases, a wound of entrance could not be found. Another valuable suggestion is that in case of eye symptoms occurring after use of hammer or chisel, no matter how seemingly unimportant at the time, foreign body in the eye should be suspected. A magnetic foreign body may be in the eye in spite of negative x-ray findings. A magnetic foreign body may remain in an eye for years without siderosis if located so that the eye fluids do not come in contact with it. If the foreign body is moved into the aqueous after long residence in the lens or ciliary, siderosis and irritation may appear within two or three days. Vision after removal of the foreign body depends upon the amount of damage done at the time of entry, with infection and size of the fragment as important considerations.

R.I.L.

Multiple Sclerosis as an Etiologic Factor in Retrobulbar Neuritis

W. L. BENEDICT (*Archives of Ophthalmology*, 28:988, Dec. 1942) states that in a review of the records of more than 400 patients with retrobulbar neuritis observed at the Mayo Clinic from 1920 to 1940, multiple sclerosis was considered to be the cause in 90 cases, other possible causes having been eliminated. A follow-up study shows that 41 of these patients have developed further signs of the disease; in none of the others have the retrobulbar neuritis and scotoma been found to be due to another cause. Multiple sclerosis, unlike other causes of retrobulbar neuritis, is characterized by "recurrent episodes of symptoms" and marked variation in the intensity of symptoms; after the earlier "episodes" of the disease, recovery from symptoms may be complete; and subsequent attacks may not occur for a number of years. Hence in the absence of signs or symptoms of other causes of retrobulbar neuritis, it would seem reasonable to suppose that the condition is due to multiple sclerosis, "even though the etiologic basis of the disease cannot be substantiated on other grounds." In the retrobulbar neuritis of multiple sclerosis usually only one eye is affected, and the onset of blindness is rapid; but the duration of complete blindness is short and vision gradually improves; if the retrobulbar neuritis is a symptom of an early episode of the disease, vision may be completely restored; in many cases a small central scotoma persists. In the 90 cases diagnosed as multiple sclerosis at the Mayo Clinic central scotoma was

twice as frequent as caecocentral scotoma. Pain was recorded as a symptom in about one-half of these cases.

COMMENT

It has taken a long time to convince physicians that sudden losses of vision are not caused by infection passing from the nasal sinuses to the optic nerve. For a long time, these cases were rushed to the rhinologist because the patient had a running nose and other symptoms usually found with a cold. The theory that an infection could pass from the ethmoidal cells to the optic nerve was alluring but no one bothered to explain how the infection could omit the peripheral layers of the nerve and affect only the centrally located papillo-macular bundle. As many of the cases made excellent recoveries, whatever was done was the cause of the recovery. Reports like the one now before us from large clinics have finally convinced even snap-shot diagnosticians that multiple sclerosis is the common cause of these cases. Multiple sclerosis is probably a virus infection in the class with sleeping sickness, poliomyelitis, smallpox, chickenpox, etc.

R.I.L.

Prostigmine in the Treatment of Glaucoma

P. MONTALVAN (*American Journal of Ophthalmology*, 26:57, Jan. 1943) reports the use of prostigmine bromide in the treatment of glaucoma. On beginning treatment a 5 per cent solution was instilled into the eye, the frequency of treatments being varied according to the "individual requirements" in each case. If the tension was controlled with this solution for several days, a 2½ per cent solution was tried and was effective in "a fair proportion" of cases. In a series of 28 cases with a total of 52 glaucomatous eyes, the tension was controlled—i.e., kept at 30 mm. Hg. or below (Schiotz tonometer)—in 56 per cent of all the eyes treated. The best results were obtained in primary glaucoma with 61 per cent controlled. In the cases of primary glaucoma in which no previous medication had been used, tension was controlled by prostigmine in 78 per cent of the eyes treated. In primary glaucomas previously controlled by pilocarpine or eserine, prostigmine failed to maintain the tension within normal limits in 33 per cent; on the other hand, in 20 glaucomatous eyes not controlled by pilocarpine or eserine,

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Medical BOOK NEWS

Edited by

ALFRED E. SHIPLEY, M.D., Dr. P.H.

All books for review and communications concerning Book News should be addressed to the Editor of this department, 1313 Bedford Avenue, Brooklyn, N. Y.

The Principle of Psycho-Physical Unity

The Universal Constant in Living. By F. Matthias Alexander. New York, E. P. Dutton & Company, [c. 1941]. 270 pages. 12mo. Cloth, \$2.50.

THE author is not a physician but practices his art with medical supervision. Originally an Australian actor with a promising career, he founded a system of treatment teaching people to restore "lost harmony" through "primary control." He taught by precept and practice allegedly aided by one of the most remarkably skilled pairs of hands in the world. In the process people were changed structurally, functionally, mentally and physically.

His "principle" is basically educational. Its effects are felt in areas presided over by the doctors, psychologists and biologists. These categories imply concepts of separation and division in the human being, whereas Alexander insists upon inseparable unity. Unity is indivisible and cannot be broken up into classifiable parts and functions. The individual is not an assembly of parts but a symphonic indivisible whole. If a part appeared to have gone wrong, to have become diseased or maladjusted, the fault, Alexander saw, lay not in the part but in the whole.

For example, Dr. Caldwell asserts that wearing a plaster collar for cervical arthritis only arrests the disease, while upon the onset of arthritis in the spine, or indeed anywhere, there occurs reflex muscle spasm or over-action of

muscle groups, which is a vicious circle as this very reflex spasm further increases the deformity and pain.

Alexander teaches how to inhibit the reflex spasm and that is his real secret. He has treated with much success such

men as George Bernard Shaw, Aldous Huxley, John Dewey, Robert Donat, and Sir Stafford Cripps.

His "principle" has probably been practiced by many men in various types of manipulative procedures. The book makes interesting reading, is quite bizarre in places, and repetition is common throughout.

JOSEPH I. NEVINS



Classical Quotations

● The improvement of scientific pathology seldom leads to the invention of new remedies; but it enables us to understand better the application of those, which are already in use; to know the particular cases to which particular remedies are suited, and to distinguish the curable diseases, from those, in which a cure cannot be effected.

Sir Benjamin Collins Brodie

Further Observations on the Diseases which Affect the Synovial Membranes of Joints. *Medico-Chirurgical Transactions*, London, 5: 239-254, 1814.

Marriage Education

Sex Fulfillment in Marriage. By Ernest R. Groves, Gladys H. Groves, and Catherine Groves. New York, Emerson Books, Inc., [c. 1942]. 319 pages. 8vo. Cloth, \$3.00.

THE Groves (father, mother and daughter) are sociologists who have made a name for themselves by their work on sex and family problems. The book is their contribution to the difficult task of educating the young ones for marriage. It is plainly written, exhaustive, matter of fact, and free from hypocrisy. There are 300 pages of information; the main chapters are anatomy, physiology, intercourse technique, venereal diseases, birth control, pregnancy, and childbirth. The illustrations are by Dr. R. L. Dickinson.

It can be recommended to all laymen interested in the subject; it will be a helpful guide to the bride and the bridegroom.

H. L. WEHRBEIN

Recent Progress in Internal Medicine

Advances in Internal Medicine. Editor, J. Murray Steele, M.D. Volume I. New York, Interscience Publishers, Inc., [c. 1942]. 292 pages, illustrated. 8vo. Cloth, \$4.50.

THIS latest volume covering developments in medicine is very good and if the succeeding numbers keep up to the same standard, they will be in great demand. In about thirty pages Abbott covers all the salient facts about the Miller-Abbott tube in diagnosis and treatment. Paul Laviertes of New Haven has thirty excellent pages on insulin and protamine insulin in diabetes. It summarizes the Yale theories and is well worth careful reading. Boston University, rapidly coming to the front as a medical school, is represented by Wilkins, sympathetic control of peripheral vessels; Keefer, Sulfonamides; and Jeghers, riboflavin deficiency. In addition there are fine articles by Rockefeller men — Farr (nephrosis), Page (hypertension) and MacLeod (sulfonamides).

ANDREW M. BABEY

Dietary Calculations

Food Values in Shares and Weights. By Clara M. Taylor, Ph.D. New York, The Macmillan Company, [c. 1942]. 92 pages. 8vo. Cloth, \$1.50.

EXCEPT for short explanatory notes, the book is entirely devoted to two extensive tables. These tables give the food values in shares and weights of approximately five hundred common foods and prepared dishes in common measures. The protein, mineral, and vitamin values have been completely recalculated in accordance with most recent information.

In offering a table of "shares" as well as one of weights, the author points out the advantages as seen by users of this system. Shares, they say, aid in quick calculation, reduce mistakes, and provide a basis for simple graphic presentation of food values. A "share" of each dietary essential is one thirtieth of the dietary standard of that essential for an active man.

Whichever system one prefers to use, one should find this book a comprehensive and reliable presentation of food values.

ETHEL PLOTZ BERMAN

Endocrinology

Glandular Physiology and Therapy. A Symposium Prepared Under the Auspices of the Council on Pharmacy and Chemistry of the American Medical

Association. Chicago, American Medical Association, [c. 1942]. 571 pages. 8vo. Cloth, \$2.50.

THIS is the third revision of this excellent book, which appeared first in 1924 as a series of articles under the auspices of the Council on Pharmacy and Chemistry of the American Medical Association.

Some of the new subjects discussed are antihormones, the role of the anterior pituitary lobe in intermediary metabolism, the adrenogenital syndrome, and the clinical significance of hormone assays. The thirty-one chapters contain the latest information in both clinical and experimental endocrinology. The book is recommended for both clinicians and research workers in this field.

MURRAY B. GORDON

The Jacksons on the Larynx

Diseases and Injuries of the Larynx. A Textbook for Students and Practitioners. By Chevalier Jackson, M.D. and Chevalier L. Jackson, M.D. New York, The Macmillan Company, [c. 1942]. 633 pages, illustrated. 8vo. Cloth, \$8.00.

THIS work is the most complete review that we have exclusively devoted to the study of the larynx. It is based upon the enormous experience of the authors and both diagnosis and treatment are handled in a most practical way. One chapter is devoted to phonation by the ventricular bands — "dysphonia plicae ventricularis" — a condition first described by the senior author and so important that it should be studied by every laryngologist. Another chapter, on contact ulcer of the larynx, describes in great detail a condition so generally confused with other lesions and is seldom given sufficient detail in other textbooks. A short chapter is devoted to war surgery of the larynx, and it is probable that after the present war experiences this chapter will be enlarged in later editions. The volume is profusely illustrated by original drawings and eleven color plates. Two of the latter deserve special mention—plates four and five illustrate contact ulcers of the larynx, and these plates should be studied by every student, as this condition is very common and yet so seldom recognized. The volume is a great contribution to our literature and should be included in the library of every laryngologist.

ROBERT L. MOORHEAD

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Starling's Latest Physiology

Starling's Principles of Human Physiology. Eighth edition by C. Lovatt Evans. Philadelphia, Lea & Febiger, [c. 1941]. 1247 pages, illustrated. 8vo. Cloth, \$10.00.

THE eighth edition of this standard text of physiology represents a complete revision of the preceding one. Although the organization is essentially the same as the earlier, the material is completely up to date and adequately rewritten.

Particular attention should be called to the section on the nervous system. The mass of investigative work in this field has been well organized and presented in a lucid manner.

The same manner of presentation is maintained throughout the book. The plan of dividing the material is unusually efficient and should aid the student in locating definite information. To the clinical reader the book is recommended as a source of basic physiological information.

G. B. RAY

The Mechanism of Pain

Pain. By Thomas Lewis, M.D. New York. The Macmillan Company, [c. 1942]. 192 pages, illustrated. 8vo. Cloth, \$3.00.

IF one merely reflects for a moment one realizes how important in clinical diagnosis is the phenomenon pain. In the face it may be so characteristic that even a brief history enables one to make a correct diagnosis. It is well-known that certain types of heart disease are diagnosed chiefly on the site and type of pain. In the chest pain is less useful in diagnosis but at least it tells one whether or not there is pleural involvement.

Gastro-intestinal diseases, for the most part, announce themselves by pain. In ulcer and gall bladder diseases it may be so classical that a mistake can hardly be made. The pain of skeletal muscle is almost diagnostic. It can be stated very truly that without the aid given him by pain described by the patient, the physician would frequently be hard put to it to make a satisfactory diagnosis.

When Sir Thomas Lewis takes upon himself the task of covering the manifold types of pain one can be sure the subject is competently covered. In this volume one can find a wealth of material on the structures producing pain—the skin, muscles,

and viscera. The last chapter gives a fine review of principles in the clinical use of pain. Everyone can profit from a careful review of this work.

A. M. BABEY

First Aid Text for Medical Students

First Aid, Surgical and Medical. By Warren H. Cole, M.D. and Charles B. Puestow, M.D. New York. D. Appleton-Century Company, [c. 1942]. 351 pages, illustrated. 8vo. Cloth, \$3.00.

THIS book appears as a first edition and is much more inclusive and comprehensive than the usual volume on First Aid.

There are 21 chapters and 17 contributors. Each of the various authors is a specialist in his subject. All of the common medical as well as surgical emergencies are carefully and systematically presented. There is a chapter on abdominal injuries, frost-bite, fractures, gas and bomb raids, transportation of the injured and a very instructive chapter discussing the difference between civilian and military casualties.

All the chapters are well illustrated by line drawings, which make them easily understood. The book was written primarily to cover the emergencies encountered during war, but it is complete enough to be used as a textbook in advanced first-aid classes and in medical schools.

There are chapters on anatomy and physiology which furnish ample background for some of the more complicated treatments.

This book is highly recommended to medical students, to general practitioners and as a textbook for advanced first-aid classes.

MERRILL N. FOOTE

A New Pediatric Annual

Advances in Pediatrics. Editor, Adolph G. DeSanctis, M.D. Volume 1. New York, Interscience Publishers, Inc., [c. 1942]. 306 pages. 8vo. Cloth, \$4.50.

THIS book represents an important addition to pediatric literature. In this book selected subjects are reviewed in a systematic and logical manner, and scientific and clinical data is analyzed and evaluated. As in all books representing the efforts of many collaborators, the authors vary in their point of view and in the manner of treatment of their chosen subjects. In general, however, the articles

are well written and in some instances are very well illustrated, and all are of a high quality.

Among the subjects covered is an excellent review of "Toxoplasmosis" by Albert B. Sabin. This covers the bacteriology, serology, immunology, epidemiology and pathology of the disease and in addition, contains a complete description of its clinical aspects. There are numerous microphotographs and x-ray reproductions.

A review of recent advances in virus diseases of interest to the pediatrician by H. L. Hodes follows. The material is presented in a clear, systematic, logical manner, and the summaries at the end of each subject help to fix, in the reader's mind, what has been dealt with in the text.

"Chemotherapy in Diseases of Infancy and Childhood" is presented under the authorship of B. W. Carey, and Dr. Robert E. Gross offers a review of his work on the "Persistent Ductus Arteriosus and Its Surgical Treatment." This article is beautifully illustrated and very practical.

Other articles include "Electroencephalography" by Norman Q. Brill, "Childhood Endocrinology" by Murray B. Gordon, "The Role of Vitamin K in Hemorrhage in the Newborn Period" by H. G. Poncher, "The Premature Infant" by Abraham Tow, and "Tuberculosis," by Waldo E. Nelson.

There is no doubt that this book fills a long felt want in pediatric literature, and it should have a wide circulation, not only among practicing pediatricians and general practitioners interested in pediatrics, but also among investigators working in pediatrics and the cognate sciences.

BENJAMIN KRAMER

Timely Book on Military Medicine

War Medicine: A Symposium. Edited by Winfield S. Fugh, M.D. New York, Philosophical Library, [c. 1942]. 565 pages, illustrated. 8vo. Cloth, \$7.50.

THIS book is a symposium divided into three main sub-division; namely, Surgery, Aviation Medicine, and General Medicine.

There are over 55 contributors, many of them holding commissions in the army and navy. As its title implies, this is not a First-Aid book for civilian use. It is confined entirely to the medical and surgical casualties associated with actual warfare. Every conceivable injury has been discussed by an authority in this particular

field. A division on aviation and naval medicine is particularly interesting, because of the recent scientific work done along these lines in many of our outstanding institutions of research. This book will be of extreme value to all army and navy surgeons.

MERRILL N. FOOTE

Animal Parasites

Medical Parasitology. By James T. Culbertson, New York, Columbia University Press, [c. 1942]. 285 pages, illustrated. 8vo. Cloth, \$4.25.

THE human animal parasites (including protozoa), their life cycles and animal hosts, the diseases they cause in man, epidemiology, diagnosis, treatment, and prophylaxis are described. The presentation is characterized by great clarity. Tables for quick reference and many good illustrations add to the value of the book. Medical students, practitioners, and laboratory workers who have had no experience in tropical countries usually dread this subject. They will find the text instructive and enjoyable.

S. BORNSTEIN

Mental Diseases

Fundamentals of Psychiatry. By Edward A. Strecker, M.D. Philadelphia, J. B. Lippincott Company, [c. 1942]. 201 pages. 12mo. Cloth, \$3.00.

THE book is written by one of the leaders in the field of American psychiatry. It is the result of a teaching experience of many years. It is well organized into nine chapters, one of which being devoted to the psychiatry of the war.

This book is highly recommended not only to neuro-psychiatrists but to the general practitioner as well because of its clarity, conciseness and yet adequate contents.

IRVING J. SANDS

Nose Therapy

Nasal Medication. A Practical Guide. By Noah D. Fabricant, M.D. Baltimore, The Williams & Wilkins Company, [c. 1942]. 122 pages, illustrated. 8vo. Cloth, \$2.50.

THIS small volume is written primarily for the general practitioner and pediatrician, with some things of interest in it for the specialist. It is the first book of its kind to deal exclusively with nasal medication. To better understand the rationale of the therapy, some space is devoted to stressing anatomy, histology and histopathology not otherwise clearly

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brought out in most textbooks.

Chapter V is devoted entirely to the effects of drugs on ciliary action and the nasal pH. The effects of drugs on the mucous membrane is detailed very clearly in chapter VI. The greatest amount of space in this compact book is devoted to methods of applying the various drugs in nasal medication.

The data is extensive, the reasoning is clear, and all controversial matter is abundantly backed up by a rich bibliography. A book any one could turn to with profit.

THOMAS B. WOOD

Food Values

Tables of Food Values. By Alice V. Bradley, M.S. Peoria, Illinois, The Manual Arts Press, [c. 1942]. 224 pages. 4to. Cloth, \$3.50.

THIS book is a compilation of tables from different sources. There is very little original work involved, therefore there is a certain lack of personal authority. At times certain data are confusing, as for example, the figures for acid-base.

The format of the book is good, the printing type is of a good visual size and well spaced.

M. ANT

The Endocrines

Endocrinology. Clinical Application and Treatment. By August A. Werner, M.D. Second edition. Philadelphia, Lea & Febiger, [c. 1942]. 924 pages, illustrated. 8vo. Cloth, \$10.00.

IN this second edition, almost every section has been rewritten to conform as far as possible with the present knowledge of an ever-changing subject. Several new chapters have been added. The text is based upon both review of the literature and clinical observations documented by reports of personal cases. The book is well printed and illustrated and is recommended to all interested in endocrinology.

MURRAY B. GORDON

Development in the Human

Human Embryology. By Joseph Krafka, Jr., M.D. New York, Paul B. Hoeber, Inc. [c. 1942]. 395 pages, illustrated. 8vo. Cloth, \$4.75.

THIS text on human development is intended principally for the use of medical students. It is one of a series of textbooks on preclinical subjects written according to a plan which sacrifices encyclopedic completeness for the sake of simplicity and essentials. It presents what

the student will have time to read at a price he can afford to pay.

The author is a well known professor of microscopic anatomy. He has described the subject matter in a clear cut manner which permits easy reading. The earlier stages of development are discussed in relation to certain specific ova and embryos in order to avoid confusion. Since the text has been published, an earlier Hertig-Rock ovum has been described, younger than the one referred to in the text as the earliest known human ovum.

The various subjects, fertilization and cleavage, axiogenesis, metamerism, and the development of the various systems are included in the text.

There are 213 inexpensive line-drawn illustrations which add greatly to the simplicity of the book and the interpretation of the text. The book is admirably suited to the purpose for which it has been written.

ALEXANDER H. ROSENTHAL

Civilian Medicine in Wartime

What the Citizen Should Know About Wartime Medicine. By Joseph R. Darnall, M.D. & V. I. Cooper. New York, W. W. Norton & Company, [c. 1942]. 237 pages, illustrated. 8vo. Cloth, \$2.50.

THE authors draw from a rich fountain of medico-military and literary experience. The volume is well prepared, and the material contained is so arranged that the reader is kept interested throughout. The importance of "Wartime Medicine" becomes more apparent to the reader as the authors unfold their story. The subject matter contained is dealt with completely, yet in a language that the non-military person can readily understand and appreciate. The reader on perusal of this book learns to evaluate the part that he can and must play in event of military or civilian disaster. The latter becomes more apparent for the authors clearly and distinctly bring out the fact that there is no more so-called "front line"; that the civilians too are soldiers and that under bombardment they too will suffer. Every practical phase of military medicine is covered, so that the civilian not only learns the part that he must play, but he also learns to appreciate the difficulties and the problems that confront the military and naval personnel. In view of the newer and modern type of warfare, this book is definitely recommended be-

cause it is both informative and very interestingly prepared and written.

SAMUEL ZWERLING

Constitutional Pathology

Constitution and Disease. Applied Constitutional Pathology. By Julius Bauer, M.D. New York, Grune & Stratton, [c. 1942]. 208 pages. 8 vo. Cloth, \$3.50.

IN this volume, aptly subtitled Applied Constitutional Pathology, are to be found the more important opinions of Julius Bauer, formerly well known to American students in Vienna and now residing in Los Angeles. In this short, attractively printed and reasonably priced volume, attention is focused on a subject hitherto largely neglected in this country. The neglect, however, has not been as deep or as widespread as one might think, and the important contributions of Draper and

the recent revival of the study of psychosomatic medicine, have provided impetus to the study of the integrated constitution.

The section headings will provide some idea of the contents of this book. Constitutional pathology, constitutional biological inferiority of organs and tissues, the integration systems of individual constitution, the classification of normal and abnormal constitution, some major diseases with chiefly constitutional etiology, principles of treatment, are discussed as fully as possible in so brief a volume.

In general, Dr. Bauer has avoided the pitfalls of dogma especially when he discusses endocrinological problems. In short, his book serves as an intelligent introduction to the subject for the student and general practitioner.

MILTON PLOTZ

BOOKS RECEIVED

for review are promptly acknowledged in this column; we assume no other obligation in return for the courtesy of those sending us the same. In most cases, review notes will be promptly published shortly after acknowledgment of receipt has been made in this column.

Noxious Gases. By Yandell Henderson and Howard W. Haggard. 2nd and revised edition. [American Chemical Society Monograph Series]. New York, Reinhold Publishing Corporation, [c. 1943]. 294 pages. 8vo. Cloth, \$3.50.

Principles and Practice of Obstetrics. By Joseph B. DeLee, M.D., and J. P. Greenhill, M.D. 8th Edition. Philadelphia, W. B. Saunders Company, [c. 1943]. 1101 pages, illustrated. 4to. Cloth, \$10.00.

Clinical Diagnosis by Laboratory Methods. By James C. Todd, M.D., and Arthur H. Sanford, M.D. 10th Edition. Philadelphia, W. B. Saunders Company, [c. 1943]. 911 pages, illustrated. 8 vo., Cloth, \$6.00.

Burns, Shock Wound Healing and Vascular Injuries. [Military Surgical Manuals Vol. V]. Prepared under the Auspices of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. Philadelphia, W. B. Saunders Company, [c. 1943]. 272 pages, illustrated. 8vo. Cloth, \$2.50.

Ship's Doctor. An Autobiography of a Surgeon at Sea. By Rufus W. Hooker, M.D. New York, Whittlesey House, McGraw-Hill Book Company, Inc., [c. 1943]. 279 pages. 8vo. Cloth, \$2.50.

Banting as an Artist. By A. Y. Jackson. Boston, Bruce Humphries, Inc., [c. 1943]. 12mo. Paper, \$1.00.

Manual of Veterinary Bacteriology. By Raymond A. Kelsey, D.V.M. and Harry W. Schoening, V.M.D. 4th Edition. Baltimore, The Williams & Wilkins Company, [c. 1943]. 719 pages, illustrated. 8vo. Cloth, \$6.50.

Medical Jurisprudence and Toxicology. By John Glaister, M.D. 7th Edition. Baltimore, The Williams & Wilkins Company, [c. 1942]. 671 pages, illustrated. 8vo. Cloth, \$8.00.

Illustrations of Surgical Treatment. By Eric L. Farquharson, M.D. 2nd Edition. Baltimore, The Williams & Wilkins Company, [c. 1942]. 392 pages, illustrated. 8vo. Cloth, \$7.00.

Obstetrical Practice. By Alfred C. Beck, M.D. 3rd Edition. Baltimore, The Williams & Wilkins Company, [c. 1942]. 938 pages, illustrated. 4to. Cloth, \$7.00.

Diseases of the Skin. By Oliver S. Ormsby, M.D. & Hamilton Montgomery, M.D. 6th Edition. Philadelphia, Lea & Febiger, [c. 1943]. 1360 pages, illustrated. 8vo. Cloth, \$14.00.



CONTEMPORARY PROGRESS

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prostigmine reduced the tension to normal levels in 5 eyes, 25 per cent. It was found that prostigmine interfered less with the use of the eyes in the patient's daily routine than other miotics.

COMMENT

Drugs that contract the pupil are indispensable in the treatment of glaucoma. They

are of no use unless they keep the pupil small. A pupil smaller than 3 mm. is less efficient and requires more light or longer observation, which patients accustomed to good eyesight over the years object to. If prostigmine will accomplish its objective without this small pupil, our patients will be immensely pleased, but experience teaches that the small pupil and freeing the angle of the anterior chamber to improve the drainage of the eye are inseparable.

R.I.L.